AMERICAN BEE JOURNAL

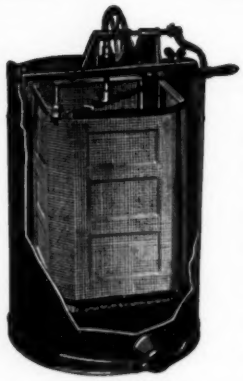
Periodical

July 1940

ADVERTISING PAGES REMOVED

EXTRACTS COMBS FAST...EFFICIENT **DOUBLE DUTY** DRIES CAPPINGS IN A FEW MINUTES

- Strong Reinforced Construction.
- Balanced Reel turns on Ball Bearings.
- Adjustable Honey Flow Gate.
- Full Comb Support.



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PATENTED

No. 14 (illustrated) handles 4 Standard or 8 Half-Depth frames. No. 10 handles 3 Standard or 6 Half-Depth frames. No. 12 handles 3 Jumbo or 6 Shallow frames. No. 18 handles 4 Jumbo or 8 Shallow frames.

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Bee Smokers (with leather bellows) 3½x7	.95
Bee Smokers (with leather bellows) 4x7	1.10
Plain Uncapping Knives 8½" size	1.15
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Spur Wire Imbedders	.20

A Complete stock of Beekeepers' Equipment.

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Makers of good products for more than 60 years.

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5 lb., 2½ lb., 20 oz. Pails.
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Modernistic or Beehive pint or quart Mason.

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Glossy Polish . . . Smooth Dovetails . . . Oval V-Grooves . . . Accurate Dimensions . . . Fine Workmanship . . . Reasonable Prices.

Write for quantity prices and your free copy of our 1940 catalog.

August Lotz Company
BOYD, WISCONSIN

AMERICAN BEE JOURNAL

EDITORS: G. H. CALE, FRANK C. PELLETT, M. G. DADANT, J. C. DADANT

JULY, 1940 Vol. LXXX No. 7

About Honey—*Roy A. Grout* 307
Editorial 308
Comb Honey—*Carl E. Killion* 310
Our Border Relations—*A. W. Finlay* 313
Supers Measure the Crop—*G. H. Cale* 314
Please Ship My Packages—*Robert I. Knutson* 316
Telling the Bees—*Leonard S. Harker* 319
The Clear Brood Chamber and Comb Honey —*E. L. Sechrist* 320
Problems of Bee Breeding—*Frank C. Pellett* 324
Irish Cavalcade—*John De Burgh Leake* 326
Spreading A. F. B.—*E. M. Cole* 328
The Editor's Answers 329
This and That 330
Meeting and Events 334
Institute News Notes 336
Crop and Market Report—*M. G. Dadant* 341
Postscript—*Frank C. Pellett* 350

Cover Picture— Blue Thistle

Blue Thistle, representative of a large group of plants which become sources of nectar during brood-rearing periods and between major honeyflows.
(Photo Fred Chadde)

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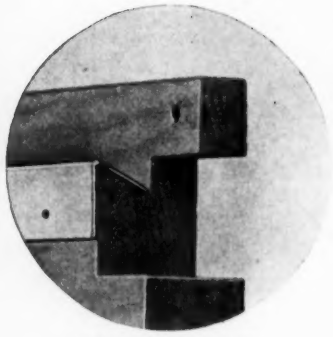
• NEXT MONTH

NEXT MONTH Frank C. Pellett will write about sainfoin—the hay and honey plant * * * * * and George W. Bohne, who is president of the American Honey Producers League, contributes "The Question of Price Cutting" * * * * * * while Edgar Abernethy, whose tulip poplar article you admired in the June issue, writes and illustrates "Honey Plants of Piedmont North Carolina.

ONLY LEWIS OFFERS THIS NEW

FRAME REST



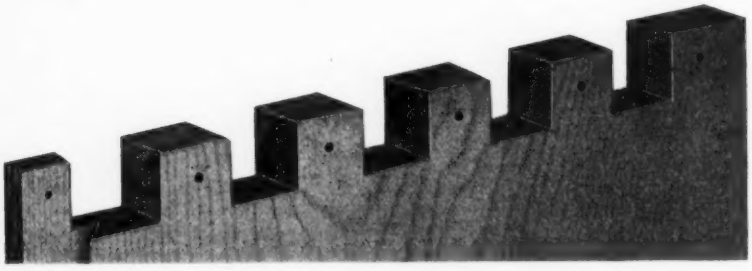
PATENT PENDING

Showing how new metal frame rest is supported by wood.

Only Lewis offers this 1940 improvement that removes a nuisance from your work, a metal frame rest entirely supported by wood so it cannot be bent out of shape. All 10-frame hive bodies of Beeware brand shipped from any Lewis branch or from Hamilton, Illinois in 1940, will be so equipped.

See the outside back cover of the 1940 Lewis-Dadant catalog for further illustration and description. If you do not have a copy of this catalog, drop us a card asking for one free. Prices not advanced.

Only Beeware now has dovetails bored for nailing on bodies, supers and metal cover rims. These improvements, together with slotted bottom frames and Dadant's wired brood foundation, will enable you to enjoy setting up and using your Lewis-Dadant equipment in 1940.



All Lewis hive bodies, super shells and metal cover rims have each dovetail bored for nailing.

• • •

HONESTLY MADE——HONESTLY SOLD——HONESTLY PRICED

LEWIS BEEWARE

STANDARD OF THE BEEKEEPING WORLD

G. B. LEWIS COMPANY

Established 1863

HOME OFFICE AND WORKS: WATERTOWN, WISCONSIN

BRANCHES: ALBANY, N. Y. LYNCHBURG, VA. SPRINGFIELD, OHIO SIOUX CITY, IOWA

ROY A. GROUT

ABOUT HONEY

IT is success to do a task so well that it cannot be bettered, and the late George Demuth has so well set forth the eras of early American beekeeping that anyone writing on the subject will refer to his series of articles. He called the first period "the box hive era previous to 1853." Bees were kept in boxes, logs, skeps, and other devices; and *honey was produced chiefly for consumption in the home.* Toward the end of this period, a box or cap was placed over an auger hole and we had our first super.

The second period was designated as the "box hive era, 1853 to 1867" and was ushered in by the greatest invention in beekeeping, a movable frame in a hive which opened from the top and which had a correct bee space. This was the invention of Langstroth and was soon championed by many honey producers.

Honey was produced and marketed in boxes holding from 5 to 10 pounds, often covered with glass on one side. This was an evolution from the cap or box and placed over an auger hole in the same way.

Then came "The first extracted honey era, 1867 to 1876." The honey extractor had been invented in 1865 but was not heard of in this country until two years later. Mehring had invented comb foundation in 1857, but it did not reach this country until many years later. The Civil War permitted little time for change and improvement, but following the war beekeeping made rapid strides. *Honey was sold in tin pails and wood barrels.*

"The comb honey era 1876 to 1906" ushered in that period when beekeepers contracted their brood nests to induce their bees to enter comb honey supers. This resulted in a move toward the smaller hive and caused a great controversy over the correct size of the hive. During this period, the comb honey section became a common thing and almost a complete standardization of hives and frames was accomplished. *Honey was sold in the form of section comb honey and as liquid honey in tin pails and glass jars* which began to be used about the middle of this era.

The last period designated by Demuth is "the second extracted honey era" and dates from 1906 when the Federal Pure Food Law was passed. With its passage, beekeepers could sell their honey in the liquid form without finding it necessary to prove to the purchaser that it was pure honey, and extracted honey production increased by leaps and bounds.

Honey, in the liquid form, as for the last fifty years, is sold today in glass jars, tin pails and the five gallon or sixty pound oil can. If you can remember when there used to be cracker barrels in grocery stores (I cannot), you can also remember that honey then was sold much as it is today. But in the meantime the cracker has kept pace with modern methods of merchandising and styles of packaging. Why has not honey?

In all probability, we are still in the last period designated by Demuth as "the second extracted era," an era of large holdings of bees, good roads, and good trucks, with very little comb honey produced. Demuth, writing in 1920, said that we were just entering this era—but twenty years have passed since then. We face a situation with honey low in price when only large quantities can be produced at a profit to the producer. The small honey producer can no longer make a living from beekeeping alone. Perhaps this is as it should be. Perhaps there will be a tendency to the production of comb honey. We hope so.

We see several fields of endeavor which may help to change the picture of American beekeeping. One is the development of adequate merchandising methods for honey.

Beekeeping faces a future, persaps a different future. It will be necessary to adjust ourselves and our methods to what the future may bring. We can all get after this matter of honey merchandising. Let's oversell, not undersell, our honey. Let's remember that honey is not a staple but a fancy food product—nature's finest sweet.

EDITORIAL

RETURNS FROM BEES

IN years gone by the price of honey was higher than today but in most localities the yield per colony was lower. In Cook's "Manual of the Apiary," which had a large sale in the eighties and nineties, we find: "The cautious, prompt and skillful beekeeper will often be able to secure an average of seventy-five pounds per colony, besides doubling the number of his colonies. This will give $10.00 per colony at least, which is almost as much as the colony with required apparatus is worth."

A yield of seventy-five pounds would give less than half the return which Cook estimated, at present prices, when sold in carlots as most extensive honey producers sell today. On the other hand, it is not uncommon to secure double the yield which he estimates.

Thus while yield per colony has gone up through better management, better pasture and better bees, the price per pound for the product has gone down. The present day beekeeper must have more bees, a larger investment in equipment and handle far more honey to get the same amount of money for his crop.

With good management in a good location an average yield of 100 pounds of honey should be secured. In view of recent low prices a return of five dollars gross per colony is about as much as can be depended upon until markets improve.

♦

MAKING BETTER BEE PASTURE

TOO long there has been the general attitude that the bee pasture is beyond the beekeeper's control and that he must accept it as he finds it. The fact is that the beekeeper can very definitely improve conditions in his territory by calling attention to plants suited to the locality. Alsike clover was first generally distributed by the beemen, and millions of acres of fine meadow as well as bee pasture resulted. In like manner sweet clover was popularized, although it took a long and hard campaign to make the public recognize its value is the farm program.

The object of the American Bee Journal honey plant test garden is to aid in this direction. It takes too long to determine the value of a new plant for us to hope to do more than call attention to new things which are promising. It will remain for the beekeepers to test them out under the widest possible variety of conditions. What fails in one place may succeed in another.

We are bringing together a great variety of plants from all over the world. If the bees find them attractive and there seems to be a place for them on the farms or in the gardens, we will tell you about them and advise you where seed can be secured, if seed is available. From the success attained with alsike and sweet clover we know that the beekeeper can be depended upon to push the introduction of new things which prove their value. First it is necessary to give a local test and that the beeman can well do in his own garden.

With present unsettled conditions comes a special opportunity to introduce new crops, since so many old ones are no longer profitable. Certainly something must be found to replace a large acreage of corn in the North and cotton in the South. If the beeman can suggest something which promises profit to the farmer, he is likely to find ready response.

♦

IMPROVEMENT BY SELECTION

SUCH outstanding results have been achieved by means of selection that the chances of improvement of either plants or animals by this means seem almost limitless.

Plant diseases which threatened to destroy melons and tomatoes have been overcome by selection of disease resistant individuals from which to propagate the stock. Similar results have been obtained with numerous other plants. The surprising result obtained in the effort to breed a strain of disease resistant bees offers similar encouragement.

Such results suggest a similar search for improvement in other directions. It would seem that much winter loss might be saved by careful search for bees which have come through severe winters in good condition and breeding from them. Long-lived bees, heavy honey producing strains, and bees with other desirable characteristics can readily be obtained in this way. The honey storing ability has been greatly increased during recent years because of the tendency to use the high storing colonies for breeding.

We are just learning the possibilities of such effort and great advances in the near future are to be expected.

♦

DEMORALIZED MARKETS

IT is impossible to carry on normal exchange of goods between countries in time of war. So much of our present day commerce depends upon foreign trade that the dislocation of normal distribution is a serious matter.

Now that the second World War is entering a critical stage our markets are seriously upset. Export demand for many agricultural products has been cut off with no compensating increase in domestic consumption. As a result, prices of many commodities continue to fall and no immediate improvement is in prospect.

During the first World War the supply of sweets was very low and prices of sugar and honey reached a high figure. The same condition may prevail again if the conflict is prolonged until present stocks are exhausted. It would seem that prices can hardly fall lower than during recent months and there is good reason to expect higher prices later on. Millions of men have been withdrawn from productive enterprise for service at the fighting front. There is every reason to believe that production of foodstuffs lags behind world consumption and soon an urgent demand must appear.

With destruction of life and property on the present scale, much distress is unavoidable, and there is every reason to believe that all foodstuffs will soon be greatly needed. Unless this country does have a liberal surplus, starvation must ultimately face a large portion of Europe's population.

Even though the present market is not active and prices rule low, a change must soon come and buyers will be bidding for whatever we may have to offer.

SOILS AND DISEASES

RECENT research indicates that there may be a definite relationship between certain human diseases and the soil on which the family food supply is grown. Perhaps this line of investigation has not yet gone far enough to permit final conclusions, but some physicians seem to be convinced that diseases may be caused by some mineral deficiency in the soil.

There has also been some discussion of certain types of poisoning because of the presence of poisonous minerals absorbed by the plants on which animals feed. Bees appear to be killed at times from gathering nectar from such plants.

It has long been known that European foulbrood among the bees has persisted in certain regions long after it had disappeared elsewhere. This has been ascribed to a difference in the honeyflow. Possibly the presence of, or lack of certain minerals may have an influence.

Enough interest has developed in this line of investigation to encourage further search and it may well be that certain regions will prove to be unsuited to the production of crops with special requirements not met by their soils.

♦

BEES ON THE MOVE

LETTERS coming to this office indicate much shifting about by beekeepers in an effort to find good bee pasture. This appears to be especially common in the Midwest where sweet clover is the main dependence. One beekeeper writes that there are more bees in his area every year, with less sweet clover, thus making it necessary to move many apiaries. It is fortunate for the beekeeper that he can move his outfit when conditions become unfavorable. The man who plants an orchard stakes his future on one spot and is unable to save anything from it if for any reason the venture proves unprofitable. The beekeeper can move to a new place and try again.

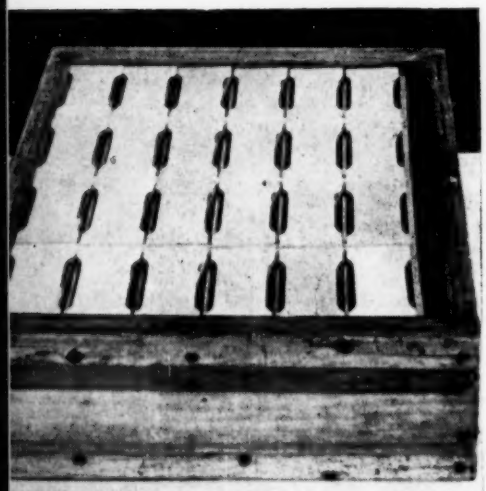
In some Iowa counties, Hubam is again coming into favor and new pasture is available. Too often it is planted for only a year or two and abandoned, so that the benefit to the beemen is of short duration. Never within the writer's memory has there been so much complaint of changing conditions which effect the bee pasture.

COMB HONEY

The first in a series of articles about producing honey in the comb.

By CARL E. KILLION

FEW things are as beautiful as a snow white section of comb honey. It tells its story without words —pure honey in its natural, original state. It strongly suggests fields of delicately perfumed flowers with bees humming and skimming from blossom to blossom. As the knife cuts through those delicate cells, constructed with geometrical precision, each enclosing its amount of crystal clear, sparkling honey, we cannot help being thrilled. For ages man has looked at honey in the comb with admiration.



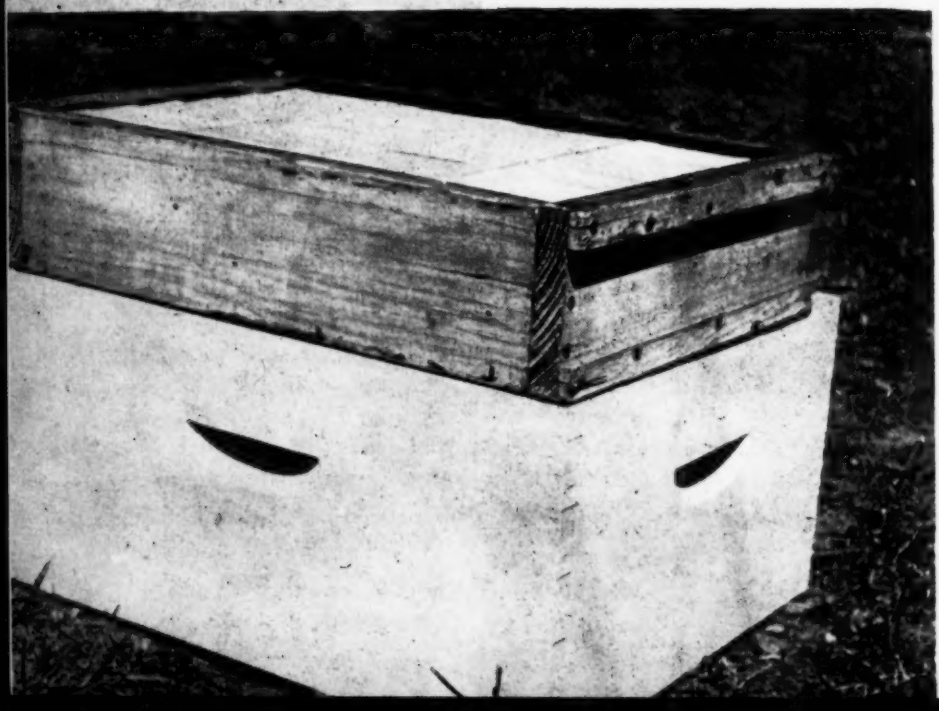
Although I defer to liquid honey, I contend that it lacks the special appeal of comb honey. A snow white section of comb honey is one of our finest foods, but more than that, it is a perfect object in that man cannot duplicate it.

Today the beekeeping industry is unbalanced. Some critics have gone so far as to say that we are producing too much extracted honey. As a matter of fact, we are not producing enough. I will admit that we may be producing enough under our present system of slipshod advertising and marketing which is so faulty that perhaps we have reached a turning point in production; but, emphatically, I will say that we have never been anywhere near the saturation point in the production of liquid honey. On the contrary, we should produce more and more. But first let us correct our marketing. To do this, one of the things we need is considerably more fine quality section comb honey. We need the kind that appeals to the eye at first sight.

Producers of fine comb honey are becoming fewer each year; the older comb honey men die and their places are not filled. As they have dropped out, the production of quality comb honey has waned. What we receive in the name of comb honey are some culls and off-grade sections which should never be allowed to reach the market. The public keeps asking for good comb honey; then, after they have bought some light weight, dripping, unscraped, cull sections, they do not buy again for a long time. The poor stuff remains on the grocer's shelves and everyone complains that comb honey doesn't sell. Comb honey will sell if the right kind is produced.

In the March, 1939, issue of American Bee Journal, Charles Mraz contributed "Comb Honey: Its Place In the Sun." I wish to quote one sentence from this article: "With six hundred colonies, I produce less than three hundred cases of comb honey a season, just enough to help sell the extracted honey." Eureka! Here, in a nutshell, is a prize winning secret. That was exactly the topic I spoke on at the national convention in Sacramento. What we need is more comb honey to sell more extracted honey! It is true that comb honey has not as many uses as extracted honey has. I produce a limited amount of liquid honey and have some good markets for it. Once in a while I treat those buyers to a few fine quality sections and explain some of the fine points of comb honey. I tell them that liquid honey is produced in comb constructed exactly like that in the sections. Over a period of several years, my records show more returns from colonies producing comb honey than from those producing extracted honey. One year there was a difference of $3.85 per colony in favor of comb honey. I have never operated over two hundred and fifty colonies in a season, but I have never produced enough comb honey to go around to my buyers. From hundreds to thousands of cases of honey of the same quality could have been sold. Every beekeeper cannot and should not attempt to produce comb honey, but there are hundreds that are able to produce comb honey of good quality and who should do so.

What interests me most is seeing



Above—The supers used by Dr. Miller had thick side walls. One following board only was used, and this made it necessary to crowd one row of sections against one wall. The sections in this row were never as good as the rest. Left—The Miller super, showing the cleats necessary to increase its length to that of the hive body.

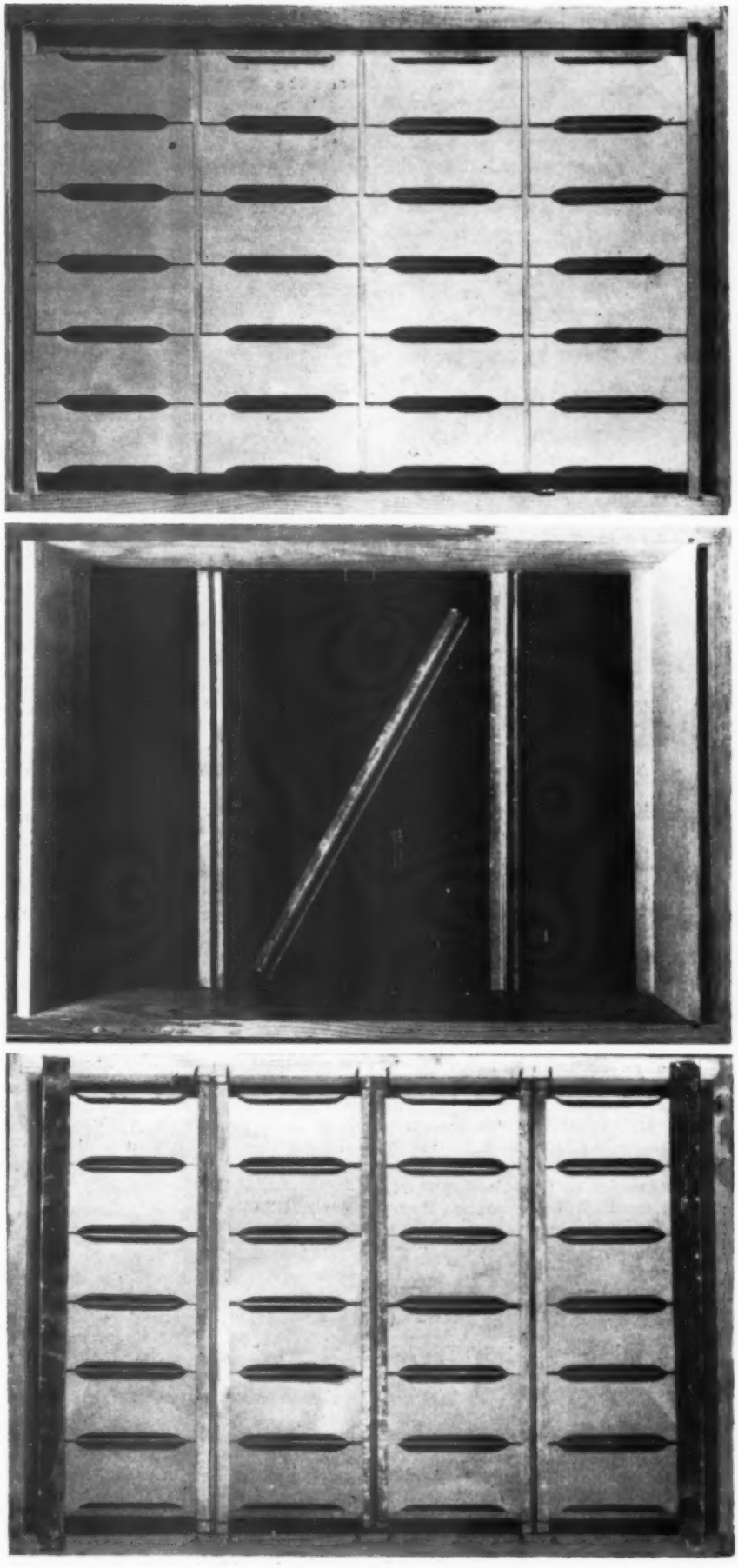
fine quality comb honey continue to reach our markets. I have done my best to produce good comb honey. The greater part of my twenty-four years in working with bees has been spent searching for the best methods of comb honey production. I wish to pass this information on to the beekeepers who may be interested in section comb honey.

Conditions must be as nearly perfect as possible for the production of fancy section comb honey. Fancy honey can be produced with such little extra effort that we cannot afford to omit that effort. First to consider is the beekeeper; he has many responsibilities. Conditions which are chiefly under his control are: (1) selection, use, and care of proper equipment; (2) breeding of select comb honey bees; (3) seasonal management; (4) selection of proper location of apiaries where adequate honey yielding plants are available. There is only one major condition over which the beekeeper has no control—weather and climate suitable for comb honey production. As my equipment will differ in a few respects from equipment now on the market, I will only point out why I prefer to use it. After all, the most important thing in comb honey production is the man behind the hive.

The Air-way Super

The "Air-way" super is the most important piece of my comb honey equipment. It is an improved, air-conditioned **T** super. Since little is known about the **T** super in many parts of the country, some history of it is necessary.

During the North American Beekeepers' Convention in Toronto, Canada, in 1883, D. A. Jones, of Beetown, Ontario, showed the super to Dr. C. C. Miller. No mention has been made as to whether Mr. Jones invented the super or not; perhaps he did. Perhaps Mr. Jones took his idea for this super from the Heddon super. Dr. Miller used the Heddon super in the year 1883, before he saw the **T** super. He wrote concerning Mr. Jones' super: "I was much impressed with it. The next year I put a number of **T** supers in use, and the more I tried them the better I liked them. I have tried a number of other kinds since, but nothing that has made me desire to make a change." This was called a **T** super because the sections rest on tins bent to make an inverted **T**. Since no



The Air-way super, top view. Air spaces at each end may be clearly seen, as well as the following boards at each side which hold the twenty-four sections away from the side walls. Center—The Air-way super, without sections, showing the T tins. The center tin is laid aside to reveal the staples on which the tins rest. Note the tin strip at either end of the super. Below—The Air-way super turned up-side-down to show the T tins, air spaces and general arrangement.

wooden section holders were used, these supers were shorter than ones having section holders. To make them fit the hives, cleats were nailed on each end of the super, top and bottom. This increased the supers to the exact length of the hive. In looking at supers similar to those used by Dr. Miller you will note one row of sections crowded against one side of the super. This caused those sections to be of much poorer grade than any of the others.

The improved Air-way super I now use is a modern, air-conditioned one which is ventilated on all four sides of the sections. The improvements, such as the ventilated ends and thin side walls, were made by the late Charles A. Kruse. Since I did not make them, I feel free to comment. In Gleanings in Bee Culture (April, 1939,) I wrote: "In my estimation this comb honey super is the finest contribution to the comb honey world aside from the one piece section." I have used it for nearly fifteen years. It is not a "here today, gone tomorrow" gadget, but an efficient, scientifically constructed piece of bee equipment which produces results. The first time I used this super I knew it was tops, the last word in super perfection.

The outside dimensions are exactly the same as those of eight-frame equipment, though the walls are made of thinner lumber. The thin side walls allow room for a following board on each side of the super. There can be no row of culls here, as there was in the old style **T** supers which provided space on one side only. The space occupied by the thicker end walls and section holder and blocks of the standard super is utilized as air space in the Air-way super. The illustrations show this clearly. This space at the ends increases the weights of the sections of honey. (The first one hundred Airway supers used increased the weight per super from two to three pounds.) This is a very important consideration. (This super cannot and must not be judged by the T super Dr. Miller used and which at that time appeared on the market. We knew Henry Ford first by his Model T car; we cannot compare that car with the Mercury or Zephyr of today. Neither can the other comb honey supers be compared to the Air-way super.) In the Air-way super there is less travel stain on the comb than in any other super, as the hive traffic is mainly through these side and end air spaces. The comb cappings are, therefore, whiter. The corner sections are just as perfect as the ones in the center. It is perfection we are looking for in comb honey, not volume. If the beekeeper does not make it possible for the bees to do their best work while the section is still on the hive, he cannot improve it much after removing it from the hive.

The inside fixtures can be handled very easily. The sections, separators, springs, following boards, and wedge sticks allow the filling of this super as rapidly as any super. The sections used are 4¼x4¼x1⅞, two bee-way. They rest upon flat tins at the ends of the super and upon three inverted **T** tins. The **T** tins rest on staples at the lower edges of the sides of the super. The staples are driven from below and are then bent at right angles to the sides of the super. The separators, which are plain and unscalloped, are three and one-half inches wide and rest directly on the **T** tins. Because the **T** tins do not allow the sections to fit closely end to end, but leave a space of about one-eighth inch between the rows, it is necessary to equalize the space in order to make all sections rigid in the super. This is accomplished with three narrow wedges inserted between the rows of sections parallel to the **T** tins and resting on the tops of the separators. All fixtures are cleaned at the end of each season.

I have often said that I prefer the eight-frame size comb honey super to anything larger. It has been several years since I have used a ten-frame size super, but this season I will use a limited number of the ten-frame size for further comparison, and the results of this test will appear later on.

Paris, Illinois.

—♦—

IMPORTANCE OF HONEYBEES IN OREGON

[From annual report of state apiary inspector 1939—Editor.]

There are approximately 45,000 colonies of bees in Oregon. They produce about 1,500,000 pounds of honey valued at present prices at around $75,000. But the main value of honeybees to the state is not in the honey and wax produced but is in the pollination of our seed, fruit and garden crops. The following crops in Oregon depend almost entirely on bees for pollination. (Acreage and value are taken from O. S. C. Extension Circular No. 334 for seed crops and from the 1935 census for orchard fruits.)

Crop	Acres	Value of Crop
Vetch seed	43200	$564000
Alsike clover seed	23700	516000
Ladina clover seed	1860	110000
Sweet clover seed	835	16800
Alfalfa seed	9200	239000
Small fruits	22050	2659000
Apples	26090	3317729
Cherries	11971	973377
Peaches	4141	331940
Pears	22743	1575872
Plums and prunes	48352	2439420
Vegetable seed		
Onion	440	66400
Radish	50	1000
Turnip	660	18600
Squash	160	7600
Total	215452	$12868738

The above list does not include some $70,000 worth of mixed vetch and pea seed, $408,000 worth of red clover seed nor the great number of home gardens and orchards which are all dependent to a large extent upon pollination by honeybees for profitable crops.

Vetch seed acreage for 1940 is nearly double that of 1938.

There are probably enough colonies of bees in the state to provide ample pollination of the seed, fruit and garden crops if the bees were present where and when they are most needed. Orchard districts in general are not profitable locations for bees due to a lack of major honey plants or to the danger of spray poisoning. It is often necessary to move bees to orchards for the period of bloom and then to move them out before the spraying for codling moth begins. It is business suicide for a beekeeper to move his bees into a district where American foulbrood is prevalent. Many orchardists have attempted to keep bees themselves but most of them have failed as beekeepers and their bees have died. It has been a difficult job to locate all the dead colonies in out of the way corners of orchards to eliminate those potential sources of spread of bee diseases but most of them have been eliminated. Most of the seed producing districts have been fairly well supplied with bees but especially in some districts producing vetch and clover seed there has been inadequate pollination. A number of commercial beekeepers are beginning to move bees into these districts, especially in the central Willamette Valley, as bee diseases are being brought under control and as neglected, diseased apiaries are being eliminated.

A. Burr Black,
State Apiary Inspector.

OUR BORDER RELATIONS

By A. W. FINLAY

ABOUT twenty years ago, in 1919, I entered the service of the Department of Agriculture as a District Apiary Inspector in British Columbia. My particular district was along the International Boundary Line, between British Columbia and the state of Washington. A great part of the territory along the border was forest land at that time with few points of contact with the beekeepers on either side, so there was no border problem then in connection with apiary inspection work, as far as disease was concerned. Beekeepers on both sides, however, visited each other freely. Our problems were very much alike, as were our methods of honey production, sources of honey, climatic conditions and bee diseases, so we had much in common to discuss that appealed to those who constantly sought to improve their knowledge by exchanging views and experiences with others of their craft.

Beekeepers' Field Days with practical talks and demonstrations in the manipulation of colonies and general beekeeping practices were very popular, and I, with many other Canadians had the pleasure of attending several of the various state and county meetings in different parts of Washington. Washington beekeepers in turn visited us and occasionally we held what we called International Field Days, when invitations would be send out to the County Associations. We had one such field day in 1924 at my apiary, that was attended by 270. About 150 were from the American side of the line. Geo. W. York, late editor of Bees and Honey, was one of half a dozen prominent speakers that day and subsequently published an account of the meeting with photographs in his Journal. A very friendly feeling existed between us through these meetings, and there was an opportunity for apiary inspectors and field workers on both sides to meet and exchange views.

Dr. B. A. Slocum was then the State Apiarist for Washington, with headquarters at Pullman College, and we often planned our work of apiary inspection so that an area clean up could be done on both sides of the line simultaneously. I am indebted to Dr. Slocum for my first instruction in microscopic diagnosis of bee diseases. Only a few years before this, European foulbrood made its first outbreak in the Pacific Northwest and like the first appearance of measles among the Eskimos, it was fatal to the kind of bees we had at that time.

It spread like a prairie fire and in certain stages, was very difficult to differentiate from American foulbrood. Our inspectors could readily distinguish a typical case of either disease, but often found that only a microscopic examination was positive, especially when, and this was not uncommon, both diseases appeared in the same hive. We lost too much time in sending samples to Ottawa or to Washington, D. C., so we eventually acquired the necessary equipment to do this work ourselves. I had the opportunity to reciprocate Dr. Slocum's assistance to me later by diagnosing samples of brood comb or smears from doubtful cases sent to me for analysis by Washington beekeepers and inspectors in territory close to me.

When Dr. Slocum left Washington to work under Dr. Phillips at Cornell, Dr. R. L. Webster, State Entomologist, took his place in charge of apiary inspection. He displayed the same goodwill and cooperative spirit in working to our mutual advantage along the border. Unfortunately, the financial depression shortly afterwards, seriously affected inspection work on both sides. The appropriation for this work was curtailed so that in spite of a rapid increase in the number of beekeepers, our staff was reduced to half. Many districts consequently went without inspection for years.

The Washington State Beekeepers Association, hoping to increase their funds from inspection service, advocated changing their system of financing this work through the various county grants, by having the Agricultural Department of their state, administer the service. It apparently did not work out so well, as they too received less inspection than formerly. The county adjoining my own territory on the American side has consequently been completely neglected for a long time, so you can imagine the conditions that would exist where A. F. B. was allowed to run rampant for years.

On the Canadian side, we had three men concentrated on area clean up work along this part of the border, but recurrent outbreaks of disease kept constantly showing up until only recently, an American beekeeper called on me requesting a check up on his apiary. He was sure he had disease. I was glad to go and help him as a neighbor and fellow beekeeper. Well, I found a deplorable condition. He had everything—E. F. B., A. F. B., Sac and Box hives. It took me quite awhile to find out who to write to in Washington about the matter but eventually, I found that supervisor of apiary inspection was a Mr. R. E. White, who also occupied several other important posts connected with Foods and Drugs, Weights and Measures, etc. However, I must admit, Mr. White lost no time in investigating my report and appointing an Inspector for Whatcom County. The inspector found conditions over a distance of 50 miles, even worse than I anticipated. But thanks to Mr. White, all this is going to be changed very quickly.

With the assistance of the officers of the Washington State Beekeepers Association, he has already inaugurated a scheme for raising revenue for apiary inspection that promises to provide an adequate service, without cost to the state department. Of course it is taxation, but apparently in a form that seems to be acceptable both to the honey producers and the dealers. A tax seal of 2 mills is placed on every section and pound of honey sold within the state. Beekeepers who bottle and sell their honey direct to the public and stores, are satisfied to buy these seals as they know the tax is earmarked for their benefit, and wholesalers and blenders have to be. Any honey produced outside the state and sold in Washington must also carry the tax seal. I am informed that nearly $2,000.00 was raised in this manner within 3 months, enough to put several seasonal men to work and it promises to provide sufficient funds for a complete and adequate apiary inspection service for the state.

I have every reason to believe that Supervisor Mr. White will now be able and willing to co-operate with me in again controlling contagious bee diseases along the International boundary line. And I hope to see a renewal of the old friendly meetings and field days where American and Canadian beekeepers can get together frequently to discuss their problems to mutual advantage.

[An address before the Conference at Sacramento, November, 1939.]

SUPERS MEASURE THE CROP

By G. H. CALE

A difficulty for new stenographers in our office is in understanding the words we use in what we say about bees and beekeeping practice. Is the beekeeper's own intelligence to be measured by whether he uses the word "super" or "box," in describing the "surplus storage space?" Or whether he uses "nucleus" or "nukly" to describe the new colony? Or whether comb honey in the usual basswood strips is a "section" or a "card?"

There is often little about the names to indicate the significance of the equipment or the management covered by them. The word "super" is a good example. Most beekeepers consider that the super is simply a set of combs or a section in which finished honey is stored until the beekeeper removes it. However, the super is much more than this. It is probably one of the most significant pieces of equipment the beekeeper uses.

In extracted honey production, which we are chiefly discussing now, the super not only serves temporarily to house the finished honey, it is also a place for bees to stay when their numbers are too great for the confinement of one hive body; and it serves for the temporary storage of raw nectar which can by no means yet be called honey.

However, since most beekeepers do think of the super as merely the storage room for the finished crop, they make the very frequent mistake of mismanagement, forgetting that the other two factors are equally important. It is not unusual to see heavily populated colonies of bees being forced to live in a single Langstroth 10-frame hive body. When the number of bees cannot possibly be accommodated by this much space, there can only be one result of such management. At the earliest possible sign of prosperity, of incoming pollen and a satisfactory abundance of nectar, these colonies will swarm or they will so fill the space in the brood combs that the queen can no longer lay, and the colony in either case will rapidly diminish in size, becoming insignificant and of no practical importance in any future crop of honey.

The addition of supers, therefore, begins when bees need room for clustering or for brood. The two or three story 10-frame colony is simply expanding space to accommodate a prolific queen to the bees which she is constantly producing, also, the storage space for pollen and nectar which the colony accumulates against the future. When the major honeyflow starts, the same space or additional space must not only continue to serve its previous accommodation, but it must open up at once additional space for the incoming crop. The first nectar is never honey. It is a thin, watery fluid, which, eventually becomes quite different.

Hive with a single super. Hives like this never got large crops. Notice the bees clustered all over the front. Inside, the hive is probably jammed with honey.

Colonies on scales often register from ten to twenty pounds in a single day in net gain from the honeyflow. Scale colonies have been recorded with gains as high as twenty-five pounds of honey in one day. It is obvious to most any beekeeper that twenty-five pounds of finished honey is a fair load for a shallow super, and not a bad one for a 10-frame full depth super. It must be remembered, however, that this much gain in a day from nectar requires considerable more space to accommodate it than the finished crop requires. To distribute nectar for such a gain would require at least two 10-frame hive bodies or two or three shallow frames.

From this it will be seen that supering bees becomes a part of management of greater significance than the mere storage of the finished crop, that supers serve three purposes: (1) clustering space, (2) nectar storage, and (3) the final storage of the finished crop.

It is my observation that a change is gradually taking place in the breeding stock used by American

A valuable load of supers of drawn comb. Such supers should be the beekeeper's most carefully guarded possession.

beekeepers. Queens are gradually becoming more prolific than they used to be, and their prolificness is lasting for a longer time. A certain pattern is being set up by the practical beekeeper which he insists on seeing in his brood nest from the queens he uses. The change is significant in that this kind of stock produces larger colonies than used to be possible. Greater populations are, therefore, crowded into the space the beehive offers. The use of more than one hive body for brood and bees is a necessity today. Even our large hive, developed in the Dadant apiaries and now used widely in extracted honey production, no longer fully gives brood spaces for the eggs the queen produces without some additional room for surplus pollen and honey from minor sources before the main honeyflow begins. Supers, therefore, must be added to accommodate population as the first requirement in the management of supers for the season. When the colonies get so heavy in bees that they need space to loaf, or when brood combs become so filled that they will not allow room for extra pollen and nectar, the super must be added or the colony will suffer.

It used to be said that one could tell when supers were to be given by noting the first whitening of the combs in the brood nest, which results from the addition of new wax at the beginning of the nectar flow. To wait this long now would be to invite swarming or to induce loafing. Supers must be added before this.

One of the most common mistakes when a good honeyflow actually occurs with large colonies is to think that the addition of a single super will accommodate the greatly increased activity of the colony in the honeyflow. It is an insult to many colonies to expect them to accommodate themselves in one super. Many flows require the giving of two or three supers to big colonies at one time. Not that this much room will have to be continually added until a stepladder is required to reach the top of the stack, but simply to accommodate the great rush of nectar and also to provide storage for the finished honey without crowding the brood chamber.

The colony may not end the flow with more than five or six supers, others being given when needed, usually on top and not at the bottom as in the old way. Why the method of supering bees underneath, next to the brood nest, in extracted honey production was ever started, I don't know, but surely not from sufficient observation of the habits of bees. Bees store readily in combs when given at the top if the colony is supered as steadily as the room is required. However, when supers are not given to a colony in a rapidly advancing honeyflow until they have finished and sealed their top super, the addition of room above this finished super is a mistake. Always give new supers next to the ones in which the bees are working, not next to ones the bees have finished. If you keep ahead of the job, however, you will always find they are working the most vigorously in the super at the top and your new supers can constantly be added at the top until the crop is over.

Many beekeepers pursuing a satisfactory policy of supering during the honeyflow, however, forget that there is a time when the flow begins to stop. A scale colony will usually reach this point. The actual daily gains level off on a straight line and slowly go

This heavily supered hive will probably produce a 200-pound crop.

down. The addition of supers beyond this is seldom necessary because there is always enough room occupied by nectar which, when finished as stored honey, takes up less space and gradually the whole stack of supers is filled heavily and enough honey left in the brood nest for the colony's needs. If supers are given too generously, it usually results in a bare brood nest and also in an excess of combs to be handled and extracted.

So far in this discussion of supers we have been referring obviously to supers of drawn comb used in extracted honey production. To secure these supers requires an investment and good management, and they become at once the most valuable piece of equipment the extracted honey producer owns and should be considered and treated as such. When there are not enough extracting supers of fully drawn comb, of course new supers are drawn from foundation. The use of foundation in extracted honey production often is not well understood. A super of comb foundation is not accepted by the bees readily at all times. Frequently, under unfavorable conditions, even in the honeyflow, the bees will not draw combs of foundation, but will put the incoming nectar and seal their honey in the brood nest just as long as there is room there.

However, there is a time in the first half of a good honeyflow when populous colonies of bees will draw foundation with no hesitation whatever. It is not necessary even to induce them to do so in any way. Supers of foundation placed next to the brood nest of such colonies in a heavy honeyflow with supers of combs above will draw the foundation so fast that it does not seem to hold them back at all. However, this time soon passes and if it is missed, the foundation has to be drawn at a later date.

This is the golden opportunity for drawing new supers. Once missed, it is gone forever until another flow or another year. When it is necessary to have new supers, therefore, from foundation, take advantage of this favorable period even if there are yet supers of drawn comb still available to the bees.

It is a tragedy sometimes to see how supers are cared for in the honey house or storage house. They are piled up without much regard to order or neatness, with no particular attention to protection from mice or moths, both of which will bring losses during the fall, winter and spring when supers are not used. Store your supers safely, fumigate them, protect them with poison wheat or some other means of mouse or rat prevention and keep the stacks of supers covered, sort the combs when necessary, see that they are clean of burr combs, not damaged by uncapping or handling during the extracting of honey, run them in the extractor so combs will not be broken.

I have been told that Dr. Miller used to say, "See that each colony has enough supers for the largest flow you have ever known and keep bees enough so that you can make a living from the smallest flow you have experienced." It is not bad advice if it can be followed. In our management we like to provide four supers of well-drawn comb for each colony in extracted honey production. Well cared for and protected, these supers will last for years and for many crops of honey.

"PLEASE SHIP MY PACKAGES"

By ROBERT I. KNUTSON

HOW many times have you hurried down to the express office, after gulping down a cup of hot coffee, first thing in the morning, or maybe you met that 4:17 morning train, feeling positive that shipment of 50 3-lb. packages of thoroughbred Italian bees from Alabama would be there and they must be carefully taken care of and all hived and fed before night so that the next shipment of 50 can be properly cared for the following day?

You go down on the morning of April 23 because that shipper down in Alabama had accepted your order and your copy of his invoice showed "SHIPPING DATE—April 20th." At the express office you are promptly informed, "No bees for you this morning."

You go down the next morning and the next, only to receive the same polite answer. On the fourth morning the express man says, "Well we got some for you this time," and wheels out the express cart with 22 quiet, clean, solidly clustered packages of nice yellow bees and remarks how well they stood the trip, because only two packages have more than twenty-five or thirty dead bees on the bottom of the cage. The next morning there are twelve in the shipment and the following morning only three. Your order was for "250 packages to be shipped 50 each day starting April 20th." Don't that fellow down there know better than to make such small shipments and force you to pay double express charges? Even in 100 lb. shipments, your express bill is going to be $97.50 anyway.

Each morning for a week thereafter on inquiry at the express office you was only to be told there are no bees. You are getting desperate because the soft maple bloom is about done and poplar and willow are looking good if you only had those packages here to get the benefit of them. After impatiently waiting a week you send a telegram to Alabama inquiring why your order is not being filled. This on the morning of May 4 and late in the afternoon your answer comes, "Bees will start going forward May 8 or sooner."

On May 11 you get a shipment of 50 packages, but the bees are black and shiny and half of the packages have over an inch of dead bees on the bottom. This doesn't look very good, so you have the express man make a notation on your express receipt estimating a total of three packages dead in entire shipment. The bees are not clustered but are running nervously around the package and when the cartload is wheeled out to your truck they set up a roar because it has been hot for two days and they have taken quite a lot of punishment on the trip.

So it goes until finally on May 28 you get the last of the 250, but no replacement as yet.

The first 37 you received built up good and you got a 140 lb. average mostly all nice white honey from them. The second bunch of shipments didn't prove as good. Several queens proved to be virgins and since they were clipped in Alabama you found some of them out in the grass in front of the row of hives with a handful of bees clustering around them and you dug her out and disgustedly smashed her between your thumb and forefinger. This bunch of 130 gave you an 85 lb. average of fairly nice honey, but the last bunch consisting of 83 received the last week in May were just getting into decent strength at the close of your white honeyflow and you extracted a 37 lb. average from them, mostly dark, off-flavored fall honey.

If you have been buying package bees for any number of years, this same thing may have happened to you and you would like very much to be protected against it happening again. Here is how.

For example, place your order with your favorite shipper for your favorite date with the agreement that the price of the packages shall drop 1% each day shipment is delayed. Supposing the price on April 15 was $3.00 for a given package. If you wanted yours on April 1, you would pay 15% more or $3.45; and on May 1 you would pay 15% less, or $2.65; May 15, $2.10, and so on.

A package of bees on May 15 is actually worth only about 70% as much as that same package on April 15 and one shipped 100 days late is absolutely worthless to the northern producer. The production value of the bees should, to a large extent, determine the price. On the other hand it costs the shipper more to produce that package for early shipment and he should receive more for it. As it stands now, the price remains the same from March 15 to May 20, consequently every buyer wants to receive his bees at the same time and the shipping season is cut short. I think this is a mighty good tip for the southern package shippers. They better think it over.

Ladysmith, Wisconsin.

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HONEY TO SELL

There is a good deal of complaint nowadays about the depressed prices of honey. During the winter of 1932-33, when employment in my line was unobtainable, I sold nearly twenty-seven tons of honey in the city of Detroit, 85 per cent of which was sold to hotels and restaurants, many never having used honey before and none in the amounts which I sold them. All this was sold in glass gallon jugs or 60 pound cans and comb honey was sold in case lots. During the last few weeks of my honey selling experience, I became interested in public and private schools serving lunches, as well as institutions, as possible honey outlets; but more about that later.

The non-drip server is just what is needed to put honey across in a big way to cafeterias or serve-self restaurants. A non-perishable food costing 6 cents to 10 cents a pound, returning 30 cents to 40 cents a pound is too good an item to be overlooked. Most eating places of this type have large and tempting food counters and beekeepers would be surprised how much honey can be sold there when it is tastefully displayed. The non-drip server should have the word "Honey" printed in red letters as large as a two or three ounce container would permit.

Comb honey would sell in the same restaurants if it could be packaged in a suitable manner for this trade and if beekeepers could sell it profitably at 16 cents to 20 cents a pound.

The present method of producing comb honey is to have the bees work both sides of the foundation. If comb honey could be produced so that the foundation was worked from one side only, it would allow a restaurant to sell a piece of comb honey 2"x2½" for 5 cents. This would be the same as dividing a 4x5 section into eight pieces. With a package of this kind I am satisfied the restaurants would sell more comb honey than the grocery stores do now.

Hotels used honey principally to replace jelly when they served hot biscuits, usually with their evening meals; and non-drip servers should be a winner here, as they would replace messy paper cups. I had four of Detroit's finest hotels using 60 pounds every two weeks that way and others using lesser amounts. Honey could be sold to passenger boats and railroad dining cars for the same purpose.

In selling to schools I must confess that I scarcely touched that business, as I didn't become interested in it until the last few weeks I was selling honey; however, the few calls I made convinced me that a substantial volume could be sold in this field.

CCC camps are natural markets for extracted honey as proved by my experience the following summer, at which time I was running a fruit and vegetable market and selling one camp its supplies. This was a small camp of 160 boys, but even so, they consumed over a ton of honey during the year. I have picked many a CCC boy up in my car since then and haven't heard of a camp serving honey regularly.

In Michigan there must be over 100,000 inmates in various public institutions who are sweet hungry and the use of honey not only would gratify this craving, but, at the same time, could be economically used as a spread to supplement the use of much butter and oleomargarine. An analysis of the possibilities of this market would mean 300 ton consumption, if each inmate used only 2 ounces a week.

The beekeepers themselves could open this market. It would mean a full time job for some individual to contact and follow up these institutions; however, he would have to have the active support of a beekeepers' association, as concerted effort from an organized group would carry more weight with purchasing agents in public institutions. This market could pay 6 cents to 7 cents a pound for honey and save the institutions' money. If it is logical to believe that increased consumption automatically decreases surplus which naturally tends to bring about better prices, the opening of the above markets should do that and eliminate the selling of good clover honey for 4 cents and 5 cents a pound. I am satisfied that this same program could be used in any state; in fact, if it is used in only one or two localities, its effect would be lost by dumping of cheap outside honey.

Malcolm Henderson,
Dearborn, Michigan.

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FAIR PRACTICE

It would be gilding the lily to glamorize honey. We cannot do more than take it as we find it and sing its praises from the housetops, though one of the drawbacks of the honey industry is that word "honey" means something else to too many people, and consequently our song would be lost on indifferent ears.

Even beekeepers are poorly informed about the merits of honey as a food, and insofar as this is true, we cannot expect most homemakers to be honey conscious. We know of many honey producers who buy sugar for their own use and who sell honey and wonder why people use it. The active and enthusiastic Women's Auxiliary of the Connecticut Beekeepers Association is concentrating on honey publicity and the work of the American Honey Institute is in this way appreciated.

The Institute has done most effective promotional work, and one is impresssed by its attempts to identify honey as the perfect health sweet food. It is maintained by funds donated by people who have reason to promote the use of honey. Some of these people trade on the good will of the Institute by displaying its official insignia. This is a good practice of itinerant honey vendors if it sustains the ideals of the organization. But, if these members employ or are presented by persons who defame honey sold by others, the purpose of the Institute is defeated, and unless this insidious practice is discouraged, the injured parties must feel that their friend has turned out to be a Judas.

These may appear strong and bitter words, but we Connecticut beekeepers are burned up by the vicious practice of itinerant honey vendors who have been canvassing our neighborhoods during the past twelve or eighteen months.

The lid blew off at the annual spring meeting of the fifty year old Connecticut Beekeepers Association, when the following resolutions were presented and adopted by unanimous vote:

WHEREAS: Several persons or groups of persons representing packers or producers of honey outside of Connecticut have by inference and direct statement, maliciously misrepresented the true facts relative to the merits of Connecticut produced and packed honey, its source, purity and marketing, and

WHEREAS: the Connecticut Beekeepers Association has consistently advocated through legislation, vigilance and practice, the maintenance of pure food standards for honey, and

WHERAS: the said Association, affiliated with the American Honey Producers League, and the American Honey Institute, promotes through education, demonstration and cooperation, the rediscovery of and confidence in the many uses of honey as a food, and

WHEREAS: the aforesaid out-of-state packers or producers implying similar affiliations, are represented by persons who have, for more than twelve months, persistently used unfair methods in competition with Connecticut beekeepers; be it hereby

RESOLVED: that the Executive Committee of the Connecticut Beekeepers Association investigate the reputed slander, and be it further

RESOLVED: that finding the evidence to be well founded, the Executive Committee shall enter official protest to the Federal Trade Commission, the American Honey Producers League, and the American Honey Institute, and engage legal counsel, if advisable.

This is evidence that the members of our Connecticut Beekeepers Association are fair-minded people who realize that their state is a legitimate market for honey produced in other sections of the country in competition with their own, but that they do resent some of the methods used in merchandising. Several exasperating experiences were enumerated at the meeting. One member reported that this satisfied customer had been solicited, and that when she had told the peddler that a local beekeeper supplied her with honey, he, in well-chosen words, said that he knew that local beekeepers fed their bees molasses and water, and asked if she would give it to a diabetic. He claimed that diabetics and persons suffering from various other disorders should use his honey, which

came from specially trained bees who gathered honey from clover blossoms exclusively. Another customer was concerned when she was reminded by a vendor that she had seen bees around outhouses, cow-barns, cesspools and other foul places, and then, without claiming that her usual source of supply was so contaminated, asked her if she would eat honey gathered by those bees. He claimed that his honey came "from the wide open spaces," where a bee couldn't find a "nasty mess" within ten miles. The prospective customer 'phoned the beekeeper who had been supplying her with honey to inquire if his bees frequented such filthy places. A few reassuring words of explanation relative to the true purpose of the bee reestablished the lady's confidence.

Individual beekeepers have tried in vain to catch these fellows slandering their honey, but the offense is usually generalized and cleverly perpetrated. To avoid legal restraint these peddlers solicit orders with sales slips and deliver the honey later. Individual members of the association obtained information and protested without satisfaction before they found many other complaining beekeepers and realized that the fight was of mutual concern. Now they realize that all over the country others should be equally concerned, and that since in unity there is strength, and the offense is against the fair name of honey, the industry must be appealed to.

The Connecticut beekeepers are aroused. Let the other state associations, the American Honey Producers League and the American Honey Institute be equally vigilant, and an evil practice just as harmful to the industry as the adulteration of honey will become extinct.

Claude L. Yates,
Hartford, Connecticut.

COWICHAN VALLEY

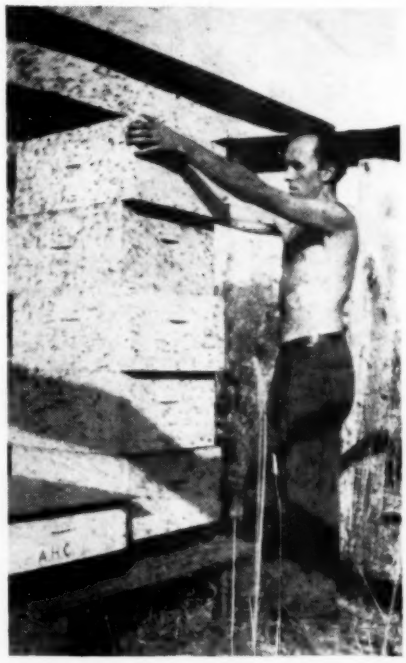
At this apiary, located on the site of an abandoned lumber camp in the Cowichan Valley, considerable difficulty was experienced in getting the bees to clean out the supers at the end of the season. In the majority of cases the bees merely cleaned out a few frames, refilling or partially refilling the rest and in some cases capping them, even though there was plenty of space below. The method shown in the photo was resorted to.

After the day's extraction the wet supers were stacked in a staggered pile on a stand to be robbed out. This was done about two hours before sunset. The staggering was done to allow more access to the stacks. This could be achieved by putting the supers out unstacked, but it was found that the bees left the tops of the frames spotted with some sticky concoction in flying over them; this also applies to the outer surfaces of the supers. For this reason a loose cover was put on the tops of the stacks.

Admittedly this method could be most effective in spreading disease, but as far as could be ascertained there was none in the district, and when the method was first tried all other outapiaries had been taken back to the home yards, and the nearest other apiary was three miles distant.

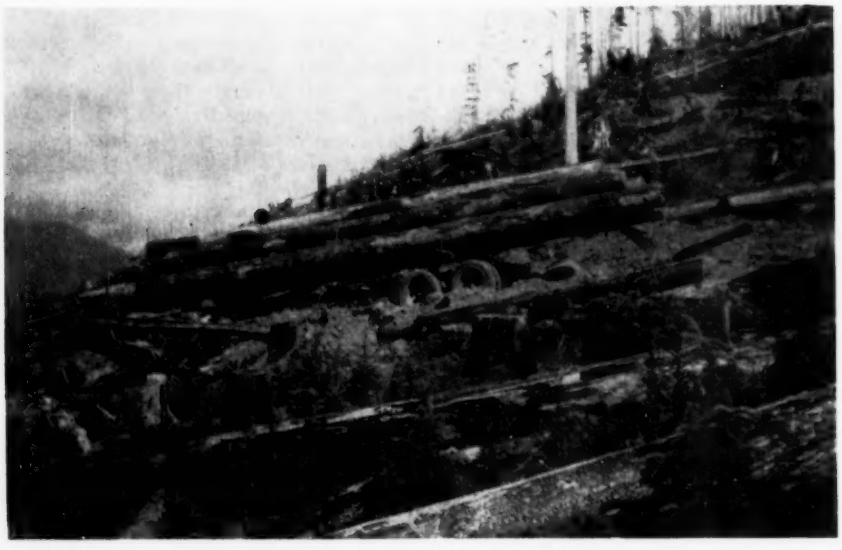
As can be seen in the photo, it did not take the bees long to find the wet supers, the latter having been brought from the extraction tent about thirty yards away. Incidentally, the costume worn is not recommended for this purpose, as the writer found out a minute after this photo was taken.

The other picture depicts logging operations being carried out about a mile distant from the apiary, the slash-burning fires following being responsible for the fireweed which provides the main source of nectar at this apiary. As a rule we can depend on fine weather during July and August, when the fireweed is blooming, but last year we had rain almost daily until July 19 from the time of our arrival on June 18. The result was that the bees were unable to reach the flowers during this period, and this was followed by a scorching



sun which very soon withered the plants. The average production per hive at this apiary, obtained by stripping the brood chamber, was 37 pounds, less than half of the average of the year before. The best average for any one of the nine operators at this apiary was 85 pounds, and the poorest was 20 pounds. The bee inspector estimated that the average for the Cowichan Valley last year was 35 pounds. He operated 75 colonies and extracted 4000 pounds. In spite of these difficulties, however, the operator of this apiary took two first prizes at the Vancouver Exhibition, as well as the prize for the best honey in the exhibit, and at the Provincial Exhibition took nine first prizes.

David Scholes,
Victoria, British Columbia.



TELLING THE BEES

By LEONARD S. HARKER

MODERN beekeeping has developed side by side with modern science, and nowadays, the wise beekeeper lets the bees tell him, which practice is born of close observation and scientific experiment. But in the days of our ancestors, and before science shed its penetrating light into the mysteries of the beehive, all kinds of queer superstitions and customs were associated with beekeeping, which to our modern eyes seem infantile if not silly.

It is a curious thing that the superstition known as "telling the bees," was quite a widespread custom throughout Europe—including Britain—in olden times; it even reached China, in a modified form. Then it was carried to the New World by the earlier settlers of America from Europe.*

Many instances of this custom have been recorded in both England and United States within living memory. It is true that old customs and beliefs die very hard, no matter how erroneous they may be. Just how the custom first originated is difficult to fathom. But telling the bees was associated with death and reincarnation. Belief in the soul is of very early origin; it was thought that the soul could assume various forms, and so in time the belief grew that the bees were a symbol of the soul. There was always something mysterious about the bees to early man, and they became to be regarded as supernatural little creatures who could fly to their home in heaven.

The first actual record of telling the bees comes from ancient Greece and then from Egypt, but no doubt the custom was in vogue long before recorded history. The Greek reference dates from classical times—author and date unknown—and is found in the Greek Anthology (Anthologia Palat. vii. 717.)

In the unscientific days of the Middle Ages, the superstition grew considerably, coupled with some curious adaptions. The idea then was that if the bees were not informed of the death of their owner they were likely to fly up into the sky to seek him. The hives were sometimes moved a little, or turned round, or draped in black on the death of the bee father. Some of these quaint customs have persisted until a few years ago.

In Austria it was believed that if a swarm settled on a house, it was a sign of good luck but that if the bees started fighting or tried to return to the hive, war was imminent. Had there been any truth in this old idea, I fear there would have been an unprecedented return of swarms to hives in the memorable year of 1939.

In Poland there is a record to the effect that once when the Crown of Poland was vacant, it was given to one of the aspirants to the Crown because a swarm settled upon him during the election. (Was this a precedent of the bee stunt of today?) The crown of the old kings of Poland contained a diamond bee as a symbol of the virtues to be found in the bee kingdom.

Finland was another country very rich in bee lore; the Finns were also great believers in magic. I fear they will need more than magic to overcome their many difficulties today.

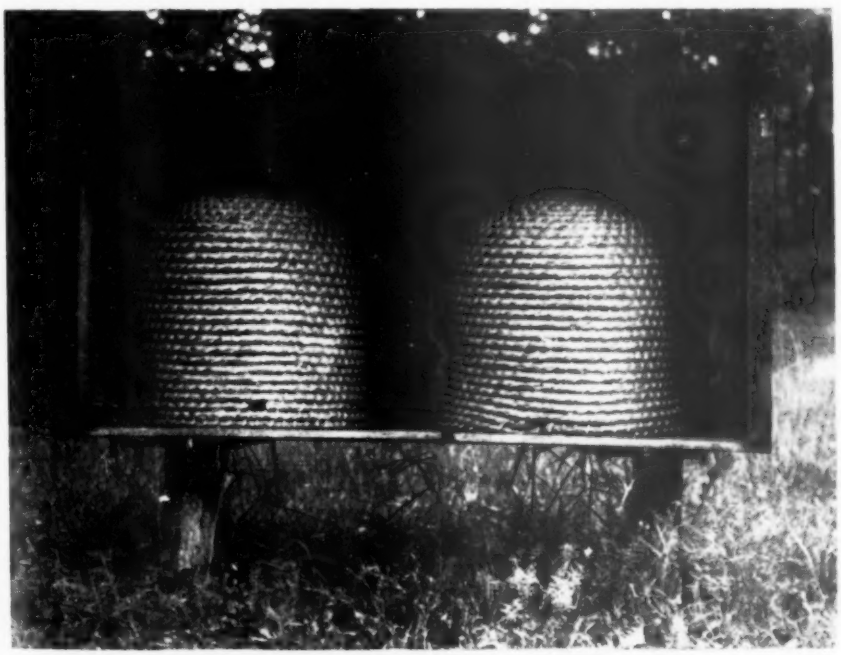
The custom of telling the bees was very common in the British Isles—with the exception of Ireland. In Britain it was necessary to tell the bees of the death of the beemaster, or they would be offended and dwindle and die. The bees were sometimes informed of deaths in the bee father's family; to be on the right side they were also told of marriages and other important events. Portions of wedding cake or of the funeral feast were placed into each hive. All news had to be whispered gently and politely to the bees! In some districts the hives were removed or turned as the funeral cortege passed by.

The bees were the little winged messengers of the gods and were informed of death so that they might carry news to the spirit land of the speedy arrival of a newcomer. (Gomme, "Ethnology in Folklore.")

There is a record of the bees being told of a death at midnight. This is the only instance recorded in which the bees were to be told if death took place after sunset; usually the time of death is immaterial. (Ransome, "The Sacred Bee.")

There was an old belief, found in many districts, to the effect that bees would not do well in a quarrelsome family. (I shall refer to this later.)

*See American Bee Journal, June, 1939, p. 320; July, 1939, p. 372. (For an account of bee-lore by the Maya and Aztecs in pre-Columbian times, see Hilda M. Ransome, "The Sacred Bee," Geo. Allen & Unwin Ltd., London.)



At John Greenleaf Whittier's home near Haverhill, Massachusetts, these old-fashioned bee skeps may still be seen near the wellsweep. They recall Whittier's poem, "Telling the Bees," which refers to the rural custom that used to prevail in New England, as well as in Europe. It may well exist yet in some parts of the United States. (Photo by Martha E. Bonham.)

Another belief was that a dead man's bees would not thrive; there appears to have been some difficulty in finding a buyer in such cases.

In Sussex there is a recorded instance of a woman who said that her baby girl had died because she had forgotten to tell the bees of her birth. (This happened quiet recently.) In Lincolnshire it was said that if a swarm settled on a dead tree or on a dead bough of a living tree, there would be a death in the family of the owner during the year. In many parts of England and Scotland bees were said to emit a buzzing sound exactly at midnight on Christmas Eve.

From what has been recorded above, it would appear that we are witnessing man's foolishness quite apart from the innate wisdom of the bees, and there would appear to be no foundation in truth or reason for such superstitions. It is quite evident that many losses must have occurred to bees in the old days of the wooden log and straw skep through ignorance and bad management; we may call it "bad luck" if you like.

Mention was made earlier of bees not doing well in a quarrelsome family. In this we can at least see some common sense. People who "rage and storm" are the very last persons to make good beekeepers, for there is no doubt that bees are very sensitive organisms. It is within the range of conjecture that the bees would have to re-adjust themselves to the new bee father after the death of their late master. We all know how some bees are very sensitive at times to strangers and animals in the apiary, even to the beemaster himself. The question of the intimate reactions between man and bees is a study that well might be attempted by scientific observation, etc.

The beemaster's life in an old world bee garden, a century or more back, had a wholeness about it which is totally absent from the modern bee farm of today. We certainly appear to have missed something somewhere. All this has taken us into very deep waters. Perhaps in the end it is all a question of "experience"—different times bring different experiences; but at least we can say that by the true acceptance of experience we can learn much. We are now in a scientific age—for better or worse—and we must learn and apply its lessons accordingly, both in relation to bees and to other things as well.

London, N. W. S., England.

THE CLEAR BROOD CHAMBER AND COMB HONEY

By E. L. SECHRIST

NOTHING so complete and so worthy of serious study has been written on the subject of comb honey as the United States Farmers' Bulletin with that title, by Geo. S. Demuth. It is the standard textbook for everyone who produces comb honey.

In that bulletin, Demuth has said. "There should be no restriction whatever in the room for brood rearing up to the time of putting on the supers, just previous to the honeyflow, for a crowded brood nest at this time tends to diminish the number of workers available for the honeyflow as well as to encourage swarming."

This is the sentence which ties up the Demuth bulletin with the discussion by the present writer of the clear brood nest method of apiary management, which was published serially, under the title HONEY GETTING, in the American Bee Journal beginning in March, 1936.

In the December, 1936, installment, after the discussion of the clear brood nest method, the statement was made that the use of a one-story brood chamber all the year was excellent for the production of comb honey. The reason for this is that the use of the clear brood nest system fills Demuth's requirement of putting no restriction whatever on the room for brood rearing up to the time of giving the supers. This is the root of any success in the production of comb honey and it will bear further discussion.

It was stated in HONEY GETTING, American Bee Journal, April, 1936, page 191, under Factor 3 in the discussion of the **six essential factors in the production of honey,** that in order to insure prompt beginning of work in the supers, it is necessary to have the brood nest so located in respect to the supers that the bees can follow their natural instinct to store honey in the closest possible proximity to it. **The brood nest should, therefore, extend from side to side of the brood chamber, immediately below the supers, the brood reaching to the top bars of the frames, with no space in which honey can be stored without possibility of removing it with ease.**

And in December, 1936, on page 589, the statement was made that, **at the beginning of the honeyflow the brood nest should extend all the way across the brood chamber, with no strip of sealed honey above the brood to prevent the bees beginning work in the supers immediately and continuing as more supers are added.**

Aspinwall, in his "non-swarming" hive, with its thick, slatted comb separators, insisted that for non-swarming and the production of comb honey, **the brood nest must extend to the top bars and across the entire width of the hive so that no sections would have sealed honey beneath them.**

Lawrence, in his use of the double-brood-chamber hives stressed the same idea, viz: that **the brood chamber should be so full of brood that no honey could be stored except in the supers.**

In the California development of the duo-queen hive, **the same idea of having the brood chambers full of brood and no honey stored therein, is basic.** It is, however, different in detail, in that nectar is stored in the central hive-space and above it, not entering the brood nests except in such quantity as is needed for brood rearing.

In all these, the central idea is the same; that the brood chamber be full of brood with no room in it for

storing honey there and that super room shall be provided in abundance. This is a factor of prime importance in the production of extracted honey, but **it is an absolute essential in the production of good comb honey, honey that can be graded,** either in sections or in shallow frames for cut comb honey.

Comb honey as a main crop can be produced only by the right man in the right location, but **a limited amount of good comb honey can be produced profitably by almost every beekeeper. For the greatest profit, he should also sell it locally.** Shipping comb honey long distances, is costly, both in handling and in breakage.

The rough, knock-about methods permissible in the production of extracted honey have no place in producing comb honey. It requires careful work and much attention to small details, as well as a steady flow of white honey. Only the very finest quality of comb honey should be marketed because all inferior grades must compete in price with extracted honey. There is a certain attractiveness and delicacy about honey in the comb which liquid honey can never equal.

Any beekeeper who has the right personality and the right location should produce a limited quantity of comb honey during the height of his honeyflow. When produced at this time, by an experienced man, it should cost him no more per pound than extracted honey. Therefore, any price he can obtain above that of extracted honey is clear profit.

This discussion, therefore, is not on producing honey as a main crop but will have particular reference to the practice of producing 100 or 200 supers of fancy comb honey when it can be done at the lowest cost. All the details of management will not be given, but those points will be emphasized which, used in combination with the Clear Brood Nest Method will give the beekeeper a uniformly fancy grade of comb honey at a low cost.

Producing Limited Quantities of Comb Honey at Low Cost

I worked out this plan for myself in California and then, of course, found other people using the same plan, and it is always good. The producer of extracted honey has his regular equipment, and all that he needs besides is the number of section supers he thinks he can use profitably, or an equivalent number of shallow supers with special frames for bulk comb honey. These special, closed-end frames were first used in Canada, I believe, but are now available in the United States. They are the usual depth of 5⅜" but have end bars 1½" wide the full depth, giving nine frames to the super, with a filler board occupying the vacant space. The bottom bar is 1⅛" wide in order to have the combs full thickness to the bottom edge and to minimize the burr combs to the lower set of frames. The top bar is also 1⅛" wide but is ⅝" thick. It may be used by fastening foundation in with melted wax but is safer for transportation if the corner of top bar is cut out in the usual way and the foundation nailed in and waxed afterwards, because one wants no sagged or warped combs when producing fine bulk comb honey.

The foundation should have high cell walls and should be put into the frames not long before required, in spite of the rush of labor at that time. The results will be better because the bees will start work more quickly and finish the combs more smoothly than if the foundation has been in the frames for months. The foundation should extend only to within half an inch of the bottom bar and to a quarter or an eighth of an inch from the end bars. Then it will hang perfectly straight and will be fastened only lightly to the end and bottom bars, making cutting out of the comb easier.

When the honey season begins, let all the colonies work in the regular extracting supers. **After the full flow of white honey has well begun,** select a number of the colonies that are doing the best work in the supers, building and capping combs satisfactorily. Then set off all the extracting supers and place on the colony a queen excluder, unless you know you can get satisfactory results without, and on that place two or four of the special supers. If one of the set-off supers is a food chamber or other super pretty well filled with honey, place it above the comb honey supers. On top of that place a bee escape, with the remaining supers on top of the escape board. Remove these supers when the bees have left them.

Do not crowd the bees too much, just enough to get them started on the foundation, and then remove the food chamber or extracting super and **give the colony as many supers as needed, so that the combs will not be built too thick and fastened with burr combs to the frames below.** It is best to take off honey with bee escapes so that any leakage will be cleaned up before the honey is taken from the hive.

With this plan of producing comb honey, **no supers are added after the first lot has been put on. As soon as supers are completed, they are removed, and the remaining supers concentrated on those colonies which are doing the best work in finishing the combs. All should be off the hives before the end of the honeyflow. Thus there are no unfinished combs, or thin uneven ones. All combs are full and of even thickness. Return** the colonies to producing extracted honey as soon as they have finished their set of comb honey supers.

When the honey has been cut out and packed, the supers are cleaned, set away in a clean place, closed up tight, ready for use the next year.

It goes without saying that **when the comb honey supers are put on, the brood nest should be CLEAR, that is, in the best possible condition for prevention of swarming, and for storing honey in the supers. The chamber should be well filled with brood, not unsealed larvae, but brood that will soon emerge and give room for more egg laying. Full combs of honey should be taken out and replaced with frames of brood if possible, or with foundation, but not with empty combs. But don't remove combs and replace with others unless you know how. A single comb in the wrong place may induce swarming and lose you the crop. A comb with some pollen in it may divide the brood nest into two parts, one occupied by the queen, and the other in just the right condition for cells to be built in it—and then comes swarming.** Breaking up the normal arrangement of the brood nest is bad enough in getting extracted honey but when working for comb honey, it is disastrous.

Examine about ten days after putting on comb supers, looking for queen cells and seeing that all is well otherwise. If any colonies are not doing well with comb honey, return them to working for extracted at once and transfer the comb supers to colonies that are doing good work and which need room, but **don't be tempted to put them on new colonies** and thus confuse the working out of your plan. **Low cost of production is to be attained by having uniform colonies, treating them uniformly at the same time, and not having to do special work with a few colonies** that you have started later, or that have swarmed. If a colony swarms, put it to work on extracted honey.

That is all there is to the matter of producing a limited quantity of comb honey in shallow frames.

Section Honey

When producing section honey, a different mechanical set-up is necessary, but **the principles of production are exactly the same.**

1. Prepare, during the winter, as many section supers as you plan to use. Unless you already have a pet super, use standard supers for 4¼x4¼x1⅞" two bee-way sections. Use only straight clean separators. Others may cause brace combs. Put in sections and foundation shortly before time to use them. With the use of celophane wrappers, wood of slightly off-color in a section is of less importance than in the days when the wood of a section was the first thing to attract attention.

2. Fill the sections with thin surplus foundation. To produce honey of the finest appearance, full sheets of foundation must be used, and in most cases bottom starters are necessary. **It is also necessary that the foundation be placed in the section with the cut edge of the foundation attached to the wood. The rows of cells will then run crosswise of the section, giving the comb a much better appearance than if the rows of cells ran vertically.** This is important but is often neglected. The difference in appearance can readily be seen by taking two sections of honey of equally good appearance and giving one of them a quarter turn.

Small top starters are not profitable because combs built from such starters can never compare in beauty with combs built from full sheets. Drone comb never equals worker comb in beauty and a combination of the two is exceptionally objectionable. Bottom starters are usually needed in order to have the comb well fastened to the bottom of the section so it will stand skipping and will grade well.

After sections are filled with foundation they must be wedged or clamped in the supers so as to be perfectly square, or difficulty will be experienced when packing honey in shipping cases. **Neglecting this point of having all sections square results in many sections being slightly cracked,** either when being packed or during shipment. These hairline cracks result in slight leakage which disfigures the surface of the comb, soils the section, irritates the broker and retailer, and lowers the selling price with consequent loss to the producer. **Much of the breakage in section comb honey can be prevented by the use of full sheets of foundation and bottom starters, and by careful squaring of sections in the supers.**

3. Clearing section supers with bee escapes is good practice when local conditions are such that their use will not cause the bees to cut open cappings of sealed honey. If the honey is well sealed out to the wood, or if the bees have already removed all unsealed honey in the row next the wood, so that no unsealed honey remains with which the bees may fill themselves when escapes are put on, cutting of cappings is almost certain to follow.

In driving bees out of supers with smoke, it is important to have the smoker filled full of clean fuel in order to prevent ashes or soot from being blown over the combs and into cells partially filled with honey. This is of more importance than is generally realized. Much fine honey is marketed at a lowered price because there are black specks in the cells, on the comb surface, or built into the cappings.

4. In removing filled sections from the supers, care must be taken to loosen them in the section holders without twisting. Otherwise many sections will be damaged by slight cracking of the combs. Small cracks may be overlooked when honey is being cased, resulting in leakage and losses in transit. Not until comb honey is packed so that it will reach the retailer in good condition can beekeepers expect an easy market, good prices, and low express or freight rates. Most breakage occurs between the freight car and the retailer, in places over which the shipper has no control. There is no remedy but for the producer to pack the honey in such a manner that it will reach the retailer with each comb absolutely dry.

Profits

It will be noticed that nothing has been said about unfinished sections. There are none; neither are there any sections with foundation in them to be carried over to the next season, with consequent losses; nor are any bait sections used, to result in low grade combs; and there are almost no "go-backs" to be returned to the hives for finishing. Besides, the crop will be almost if not quite as much as if of extracted honey.

And if the season should prove to be a poor one so that comb honey could not be produced profitably, the supers would remain in the honey house and the sections and foundation in their boxes, as good as new for the next season. The small loss in interest money would be much less than if time and labor had been expended in getting half a crop of low grade comb honey, while the crop of extracted honey might still be profitable.

Many little losses are cut, both in material and labor. All the comb honey produced is uniformly of fancy grade. Not much effort is required to sell a few hundred cases of fancy comb honey direct to the retailer. In these things profit lies.

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MICHIGAN HONEY

The first carload of Michigan honey sold under the new grading regulations, was shipped January 20 from Adrian. Not only was this the first carload of graded honey, but the first solid load of any kind of produce placed under the regulations. Since then, four or five cars of honey have been shipped from farther north and several carlots of beans have been sent out of the state.

The honey was graded at the apiaries of Clyde Godfrey of Jonesville, and William Strickland, of Hastings, and loaded and consigned to an out-of-state market by M. N. Dillon & Sons, of Adrian.

Gordon P. Dillon, manager, predicts that many Michigan honey producers will use this grading service as it will make it easier to sell Michigan honey in other markets. Full particulars concerning the service may be secured by writing to Russell H. Kelty, Michigan State College, East Lansing, or Dr. Howard Potter, Ithaca or East Lansing, Michigan.

Because honey varies so much in color, flavor, body, clarity and other factors, it would seem that anything which tends to eliminate the guess work between the buyer and seller would be eagerly sought by both of them.

IT MAY BE NOSEMA

In diagnosing spray poisoning of bees, beekeepers and orchardists should keep in mind that Nosema disease causes practically the same external symptoms and may easily be confused with actual spray poisoning, although Nosema usually occurs slightly later in the year. Crawling bees (disappearing disease, May disease) may be present at the beginning of the summer honeyflow. In some years, as in 1938 in Illinois, Nosema disease was severe throughout the state and caused serious alarm. Occasionally a colony may be so infected that it will not recover during the season.

When they are suffering from spray poisoning or are infected with Nosema, numerous bees with distended abdomens may be observed struggling in front of the hive and crawling away in the general direction of their usual line of flight. The distended abdomens of spray poisoned bees are caused by an accumulation of dark yellow or mustard-colored feces in the rectal cavity; in Nosema, the feces are watery in consistency and pale in color. Pressure on the abdomen of the spray poisoned bee usually causes a rupture in the region of the scent gland on the dorsal part of the seventh abdominal segment, the anal opening apparently being restricted. Pressure on the abdomen of Nosema infected bees, usually forces the rectal contents through the normal anal opening.

Nosema infected bees can be detected by an examination of the stomach. In normal or healthy bees, the true stomach is light brown in color; while in heavily infected bees, the abdomen is milky white in color. Definite proof is obtainable by the examination of the contents under a low power microscope. The presence of numerous white, rice-like spores of Nosema apis will definitely confirm the diagnosis. This protozoan parasite infests the lining of the stomach and malpighian tubules.

No doubt, many beekeepers have incorrectly diagnosed crawling bees as spray poisoning when Nosema disease, or possibly in many cases a combination of the two, was responsible.

V. G. Milum,
University of Illinois.

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FRED ALGER

Fred Alger, 77, one of Wisconsin's pioneer beekeepers, died May 12 in Oshkosh, Wisconsin hospital. A resident of Waukau, Mr. Alger began at the age of nine to help his father with the care of bees and had been associated with the business ever since. He is survived by his wife.

QUEEN-MUFF

They're back! All the best beekeepers are wearing them . . . or they soon will be, once they try this new queen muff. It may lack the velvet and ermine tails of "haute couture" but it is as air-conditioned and as clear-visioned as Editor Cale has been able to make it. Time was when he would crawl into the cab of the truck, roll up all the windows and sit there sweating for hours (well, maybe not **hours**) while he got a batch of queens ready for the reservoir. You probably know what a hot job it is chasing the queen around in that little cubicle—over the windshield, up the windows, even under the cowl.

That's all past. Now the editor sits under the truck, in the shade, his queen muff in his lap. Besides him, fifty or so queens with attendants, waiting to be got ready for the reservoir, wings clipped, marked, or what have you. Here's how it works. Suppose you have a batch of queens you can't use right away. They must be kept alive, so into the queen reservoir they go, to be cared for by the worker bees in that colony. First it's necessary to remove the attendant workers from the cages, so out with the queen muff. With the hands holding the cage in the muff, the wire is lifted and all bees fly out. Inside the muff, it's to recapture the queen, put her back in the cage and fasten down the wire. The attendants of that queen are shaken out of the muff, and so on. One of his assistants, shown in the photographs, can handle a batch of queens in just a little while. Or, the editor can sit at his desk and, as he handles each cage, shake the attendants out the window. Things are really too easy these days.

Oh, yes, the muff. It's just screen wire bent to form a cylinder and sewed at the edges. At either end of the cylinder a collar of cloth is fastened to fall around the wrists. There is no elastic for the arms. After all, they are bees, not Bengal tigers. The screen and the two cloth collars are each cut 12x24 inches. After it is assembled, the muff is about 36 inches long. Try it.

PROBLEMS OF BEE BREEDING

Dr. Otto Mackensen and William C. Roberts at the Southern Field Station are making a study of inheritance in the honeybee.

By FRANK C. PELLETT

WONDERFUL things have been accomplished in recent years by the plant breeders who have brought forth new fruits and flowers unlike anything which the world has known before. Poultrymen have developed new breeds of fowls and live stock breeders have changed the type of farm animals to fit a particular need. As the laws of heredity become better known we are learning how to create new types of either plants or animals to serve a particular purpose or adapted to a special environment.

Only the beekeeper continues with the same stock which has come down for centuries with but little change. Such improvements as we have is the result of natural selection because the beekeeper kept his best colonies for increase.

Like the weather, we have talked a great deal about it but nobody has done much of anything about it. For some time past we have been hearing talk about breeding better bees but always there has been the problem of controlling the male parentage. Until very recently that difficulty has seemingly furnished an unsurmountable barrier to systematic breeding of the honeybee.

With the establishment of the bee culture field stations came opportunity to do really constructive work in the fundamental problems which still remain unsolved. In order to undertake a serious breeding program it first became necessary to learn something about inheritance in the honeybee. It is assumed that the laws of genetics are universal in their operation but in order to determine what can be expected in a given case we must know with what characters we are dealing.

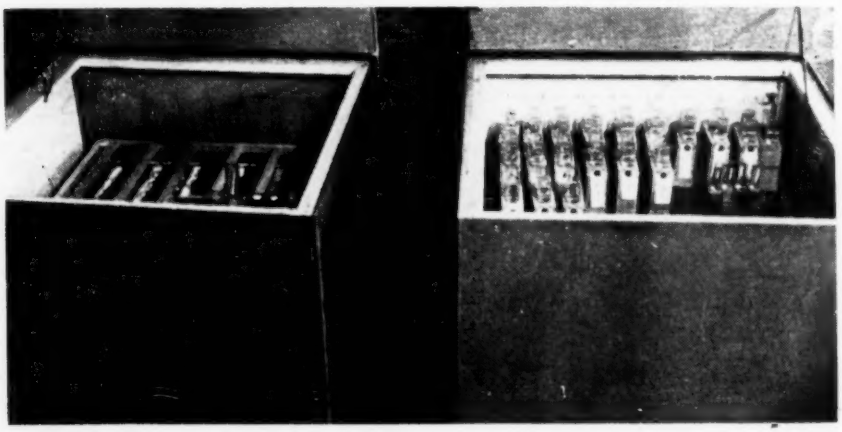
In order to chart a proper course for men who wish to devote some attention to bee breeding, a study of these fundamentals is under way at the Southern States Laboratory at Baton Rouge, Louisiana. It is our pleasure here to introduce the two men who have this work in charge. The geneticist is Dr. Otto Mackensen, a native of Texas, and his assistant is Wm. C. Roberts. To them has been assigned the task of finding out how the laws of inheritance operate in the case of the honeybee. It is hoped that in time they may be able to lay down instructions which, if followed faithfully, will enable the queen breeder to combine the desired qualities of different strains of bees in his breeding stock as plant and animal breeders are now able to do.

The first problem which presented itself was to find some means of insuring matings within the desired limits. It has been suggested that if bees were permitted to fly at great height a safety zone might thereby be established. To test this matter the new Louisiana State Capitol which is about 450 feet in height seemed to offer ideal conditions. Accordingly bees of such marking as would easily be detected in case of mismating were selected for the test. Nuclei containing the desired drones were established at a height of about 400 feet above ground to be available when the young queens were released for their mating flight from the same height.

Otto Mackensen

The result was a disappointment for instead of remaining at this high point both queens and drones sought to explore the area at near ground level and the young queens found their mates from other bees in the vicinity. The one thing which the experiment proved was that height alone was insufficient to insure pure matings.

Since controlled mating is absolutely essential to a successful study of this problem Dr. Mackensen turned to Watson's method of artificial insemination. Watson has given the beekeeper a tool which promises to open a door which otherwise might have remained shut but it is a difficult instrument to use. The operation is even more delicate than a surgical operation and it takes years to train a good surgeon. The percentage of success with this method of mating has been low at best and in order to get the facts necessary for this study large numbers of queens must be available.



Incubator used by Dr. Mackensen for queen and drone storage before insemination. Some queens mated in August, 1939, are still being stored here.

With practice has come constantly increasing percentage of success. Some queens have been mated by this method which have laid in a normal manner throughout an entire season and carried into winter with a reasonable prospect of starting another. Artificiallly mated queens are not readily accepted by new colonies and there is an undue loss in introduction.

In practice the young queens are permitted to emerge in nursery cages and confined there until mated. This has been done at various times from the sixth to the twentieth day in order to learn if possible the most suitable age and condition. The past season, after allowing for all queens lost in introduction or by accident, approximately fifty per cent of the artificially mated queens have laid. Seventy-five queens have laid on an average about 65 days and only seven proved to be drone layers or developed into drone layers. In view of the difficulty of this delicate operation it appears to the writer to be a very high degree of success. It would seem that the way is now open to make rapid progress toward securing an answer to the many questions that remain unknown in this field.

Mackensen and Roberts have been assigned about the most difficult problem in the beekeeping field but they appear to be in a fair way to achieve substantial results. Not many are working in this direction and there are many who will await with interest the report of their experiments.

With a means of control of the mating which thus permits them to select the individuals to observe, they must next have some character which can be seen or definitely measured. With so small a creature and one about which so little is known this also offers considerable difficulty. Thus they begin looking for abnormalities which may be transmitted to their offspring. The object in perpetuating these deformities is only for the purpose of learning the laws of inheritance and once these laws are understood it will be time to start breeding for such desirable traits as non-swarming, honey storing, gentleness, long life, etc., which are desirable but which cannot be seen or measured by examination of the individual.

A start in this direction has been made by securing stock of bees producing white eyed drones as did Doctor Watson. By inbreeding the progeny they have secured both queens and workers with white eyes and thus have assurance that they can carry abnormal stock from generation to generation.

When working in a new field and especially one with so many technical difficulties, progress is likely to be slow. Once serious crossing is under way it is probable that isolated mating stations will be established to secure normal mating of queens which can then be tested for honey production under commercial conditions and the best producers selected for further breeding.

Neither of these men underestimates the size of the job which he has undertaken nor does the public have much appreciation of its difficulties but the writer confidently predicts that our readers will be hearing from Dr. Otto Mackensen and Wm. C. Roberts.

Mackensen's queen yard.

PROGRESS

There is no question about the right of anyone to express his opinion, but when it is expanded to include criticism of a magazine for publishing the ideas of another because they are unorthodox, it is striking at the heart of our American principles.

In his recent article in February, page 67, "How to Use Resistant Bees," Mr. Hosley actually suggests such a procedure because the American Bee Journal published the opinion of Mr. Mraz, "Emphasis on Color" in December.

If journals or any other magazines should embargo anything but strictly orthodox knowledge, we would not only cease to progress, but stagnate. I, for one, enjoy reading the opinions on both sides of all questions, and feel that most beekeepers have little trouble deciding things for themselves.

If we return to the article in question, we find simply a statement of fact by Mr. Mraz on the way he handles disease in his daily routine. If more of us possessed bees that we had determined to be highly resistant to disease, I wonder if our plan would differ much from his. Some of the most recent evidence tends to substantiate rather than weaken the claims made by Mr. Mraz.

Looking at the subject in perspective, it is apparent that we are watching history being made. Although the idea of resistance did not originate with him, it was Mr. Mraz more than any other person who got American beekeeping resistant conscious. By his keen observation, careful analysis, thorough knowledge of bees and ability to reason things out, he was able to produce enough tangible evidence to convince others there might be a better way to attack an old problem.

It appears that he started something with untold possibilities and one that may well prove to be the greatest development of this century. The beekeeping public owes him a debt of gratitude that should be given now instead of a hundred years from now on a bronze tablet.

The American Bee Journal too is deserving of the greatest praise for having the courage to print some of his early articles, and for its vision and initiative in undertaking the original experiments with resistance of bees to American foulbrood. If this work should stop at its present state, enough has already been learned to show the value of publishing ideas that may seem radical to some. It is also within reason that Mr. Mraz is today far ahead of other beekeepers in the practical application of what he has found out.

John Conner, New Jersey.

IRISH CAVALCADE

By JOHN De BURGH LEAKE

THE history of beekeepers in Ireland—or in Eire, to give the country its present (and remote past) name—goes back for several thousands of years. The earlier periods, which are of purely academic interest, may be skipped. As in other European countries, bees in Eire were kept in straw skeps or wooden boxes until the latter half of the nineteenth century, when the frame hive first appeared. The new idea, however, made but little progress till the Irish Beekeepers Association developed in 1881. This body did its best to spread the new-fangled notion, and succeeded to quite a remarkable extent.

Later, the Department of Agriculture, then an organization controlled from Britain, undertook the job of popularizing the frame hive, and encouraging humane and intelligent methods of honey production. Slowly but surely, the sulphur pit disappeared, and today there are very few, if any, beekeepers in Ireland who find it necessary to kill their bees in order to obtain a honey harvest.

The first English military force bent on the subjugation of Ireland landed in 1170. A second force, less hostile to the Irish, and bent only on subjugating their bees, landed more than 700 years afterwards, in 1886. This detachment consisted of but two Englishmen, both bee experts qualified under the rules of the British Beekeepers Association. One was James Andrew Abbott, son of Charles Nash Abbott, founder and first editor of the "British Bee Journal." The other was my father—John Leake—who had come to Dublin to fulfill a temporary engagement as singer in the choir of a Dublin Cathedral. Neither intended to settle permanently in Ireland. But the fates, and the attraction that Eire always presents to the English, ruled otherwise. They never returned, except for a holiday, to their native land. Both remained in Ireland and became prominent members on the industrial side of the Irish bee community.

From this period until the granting of dominion status to Eire in 1921, the history of bee culture in Ireland is almost parallel with that of Britain, the climates and general conditions of the two countries being similar. The honeyflow in both islands is somewhat short and uncertain, extending usually from late May to early

John De Burgh Leake

August, or, in heather districts, until the close of September.

Since then, conditions have diverged. These changes culminated in the levying of a prohibitive tax of one shilling, equivalent to 25 cents per pound on all honey imported into Eire. This ban is lifted by the Irish government whenever there is reason to believe that the supply of honey is not equal to the demand. Special import licenses are then issued.

At present, the government is active in promoting beekeepers' interests, and provides free services of various kinds. In accordance with the provisions of the "Department of Agriculture's Scheme of Instruction in Horticulture and the Management of Bees," one or more instructors qualified in horticulture and beekeeping are employed by each county committee of agriculture. In rural areas, these services are available free of charge.

In the congested districts, where the holdings are often of an unremunerative character, advice on matters pertaining to beekeeping is also obtainable from the assistant agricultural overseers, and for these areas the Department has—as a supplement for the provision of grants by county committees towards the purchase of hives, swarms and equipment—a special scheme under which grants are given towards the purchase of hives and swarms by smallholders.

Under the Bee Pest Prevention (Ireland) Act, 1908, the Minister and the Committee of Agriculture are authorized to adopt compulsory measures to control certain brood diseases of bees, including American and European foulbrood and sac brood. Examination of bees and combs for beekeepers is undertaken free of cost by the central staff of the Department.

Regarding my own position in the industry, I may say that, having returned to Ireland in 1936 after many years' residence abroad, I noticed that, since their official organ has ceased publication, Irish beekeepers had no means of voicing their opinions or of keeping in touch with their fellow craftsmen in other lands. Thereupon, I asked the editor of the leading Irish newspaper—the "Irish Independent"—to permit me to establish a bee feature. This he agreed to do, and the feature has been appearing fortnightly during the season since May, 1936. It is the only periodical literature on bees published in Eire, either in the twenty-six county or the six-county section.

One of the greatest difficulties confronting Ireland, in the bee as well as in other spheres, is the partition of the country. The interests of beekeepers in the six-county area are now quite different from those in the rest of the country. Mutual cooperation is therefore difficult. In the partitioned counties, forming a

Hive of the C. D. B. Type used in Eire.

part of the historic Irish province of Ulster, producers have no protection from foreign competition—for the British ban on non-Empire honey does not benefit native of "Northern Ireland" beekeepers so long as important producing countries such as Canada, Australia, New Zealand and the West Indies can send as much honey to Britain as the market will take. In the twenty-six counties, on the other hand, producers are thoroughly protected from outside competition by the prohibitive duty on imported honey.

The type of hive most popular in Ireland is known as the C. D. B.—the initials of the Congested Districts Board, to whose specifications it was originally designed. This hive consists of a brood nest, lift, roof and detachable bottom-board, often fitted with a ventilator. The brood nest contains 11 self-spacing frames, each 14"x8½", and a dummy frame. The lift is used to supply additional stories when supering, and the roof, unlike the American roofs, is not flat but shaped like the letter "A." The bottom board is removable, and generally is fitted with four legs—a feature not usually met with in American hives. The frames run parallel to the entrance—the "warm way"—and not, as is the custom in U. S. A., at right angles to the entrance—the "cold way."

The C. D. B. hive, however, has served its purpose and is now being gradually displaced by hives of the Modified Dadant and Langstroth patterns. Indeed, it seems likely that the evolution of Irish apiculture, in the future, will be influenced more by American than by British schools of thought. This is as it should be. In a country where there are so many whole-time or large-scale honey producers, uneconomic or otherwise unsatisfactory methods must of necessity be weeded out. A man who depends on his bees for bread and butter cannot afford to repeat serious mistakes. That is why American hives and ideas should be given a more extended trial in Eire, bearing in mind that climatic and other conditions peculiar to the country call for modifications in standard American practice.

Since the early years of the present century, Ireland has been scourged by Acarine disease — infestation, usually with fatal results, of the trachea or breathing tubes of the adult bees by a mite, **Acarapis Woodi.** America, fortunately for her beekeepers, has never known this disease. We are now recovering from the setback which it brought about, partly because the Frow treatment constitutes, in most cases, an absolute cure and partly because our bees are developing certain powers of resistance.

In March, 1939, a new and virile organization for beekeepers, The Irish Guild of Bee Culture, was formed, and it is hoped that, under the aegis of this society, the outlook for apiculture in Eire will become increasingly favorable. On the whole, I believe I am right in saying that the crisis has passed, and that the industry can look forward to steadily improving conditions both in the immediate and more remote future.

Commercial Buildings,
Dame Street,
Dublin, Eire.

[With day to day developments abroad what they are, it becomes increasingly difficult to publish the contributions of European beekeepers with any assurance that conditions they write of still obtain. It may be well to say this article and that by Mr. L. S. Harker on page 319 (though the latter is not exactly of a contemporary nature) were both received here during the spring just past.—Editor.]

HISTORY OF DISEASES

History of bee diseases in Oregon is difficult to find but according to Dr. James I. Hambleton, Apiculturist in Charge of the Division of Bee Culture, U. S. Bureau of Entomology, American foulbrood was first definitely determined from samples sent from Oregon in 1907 from Malheur County. It was again diagnosed in samples from that county in 1910, from Clackamas, Douglas, Multnomah and Umatilla in 1911, Coos in 1915, Marion and Benton in 1917, Columbia in 1918, and in Linn, Morrow and Clatsop in 1920. At the present time it occurs in every county in the state. It is usually considered that the disease was brought to California in 1849 to 1856 and that it probably reached Oregon from there. A Mr. Britt brought bees to Jacksonville in 1867 but it is not known whether or not disease was present. It was only in 1907 that it was definitely proved that there were two distinct diseases of bees included in what had been known simply as foulbrood up to that time.

European foulbrood was first definitely diagnosed from Oregon in 1912 from Multnomah County. In 1915 it was found in Linn, in 1917 in Marion and Benton counties. It is probably present in every county in Oregon now. Between 1908 and 1912, a very virulent disease of bees broke out in Clatsop County and in the northern Willamette valley. It almost wiped out the bees in the districts where it hit. Mr. Herman Ahlers, of Birkenfeld, and others who had bees destroyed by this epidemic consider that it was European foulbrood.

The first inspection law applying to bees in Oregon (Sec. 5732, 5733, 5735, 5736, 5737 of Lord's Oregon Laws) was approved February 21, 1906. It applied only east of the Cascades and provided for county inspectors to be appointed by the county courts. The act was amended to cover all the state in 1917. The amended act made it mandatory for the court to hire an inspector upon petition of seven beekeepers and left it to the court to provide the salary. The act required owners to treat diseased colonies to eliminate disease and authorized the inspector to do it if the owner did not.

In 1920 the law was again rewritten to provide for licensing apiaries by the counties, the fee to be $1.00 per apiary regardless of the number of colonies. Disease treatment was to be under the supervision of the inspector who was still hired and paid by the county.

Bee inspection was not successful under the foregoing laws. There was not money enough to pay for the work and what work was done was of a purely local nature.

In 1933 the present law was passed. It has been amended slightly in 1937 and 1939 largely in the matter of fees. The essential points of the law are that it puts bee inspection under the State Department of Agriculture; it defines the duties of inspectors; it specifies that colonies affected with American foulbrood be burned and the hives sterilized; it requires that all colonies be registered with the Department of Agriculture and provides a registration fee; it requires that a permit be obtained before bees are moved or sold; and fixes responsibility for the prosecution of offenders and provides penalties for violations of the law. The legislature the past two bienniums has appropriated $2500 per biennium for carrying out the provisions of the law.

A. Burr Black.

SPREADING A. F. B.

By E. M. COLE

NEARLY all ways of spreading American foulbrood have been thoroughly discussed, but one way has not, I think, been treated as fully as it ought to be. That way is spreading the disease from the extracting house to the near-by apiary.

It is not possible to know with absolute certainty that there is no honey in your hives with spores of this disease, although no disease has ever been in evidence Many years ago we were told to screen against robber bees that might carry this infected honey back to their hives, but this was not effective; for bees load up with honey, fly to the screen and give up their load of honey to outside bees through the screen. Watch them, and you will see them return to the capping tank and again load up and deliver it through the screen. They may make several trips before leaving through the bee escapes; and this honey they deliver not to bees from their own colony, but to the first robber bee demanding it.

Then, double screening was given as a preventive; but watch the bees leaving the escapes at the top of the screens, and you will see many of them delivering their loads to robber bees. It is true they cannot return for another load but double screens do not eliminate the danger of spreading disease.

I believe the best method of handling this is to double screen all windows with no chance for the bees inside to get out, and cut to a minimum the number of bees brought in with the supers. At night, or when through extracting for the day, give them a dose of fly spray or cyanogas, **but handle that cyanogas with care. It is deadly.**

A way of spreading this disease that I have not seen mentioned is a certain kind of robbing, not the kind that takes place when a weak colony or a nucleus is raided but the continual prying around hive covers and around the cracks between supers. This often takes place when no serious robbing is being done, not a colony in danger; but watch closely and you will see that whenever hive covers are ill fitting, or there are slight cracks between supers, bees inside the hives can reach through these small openings and will deliver honey to outside robbers.

It is true that if this robber bee tried to enter at some small opening that the colony was used to guarding, it would meet a hot reception; but where the opening is just enough to allow their tongues to touch, honey will be delivered. A good spraying of kerosene is the best remedy I have found for this. Bees seem to dislike the odor more than anything else I have tried, and the odor seems to remain a long time. Carbolic acid does not do nearly so well, and the scent is quickly gone.

Another way that I have never seen mentioned is by bees that swarm and return to their hive, or at least are supposed to do so, and this is, I think, one of the most dangerous things that can happen in an apiary with a sprinkling of disease through the colonies. I read not long ago that a colony with A. F. B. would not swarm or was not likely to do so. This is bad doctrine, for a colony contracting the disease in the spring may go into the honeyflow with a good many cells of foulbrood without in the least affecting its likelihood of swarming. The brood is fed on new honey and the disease may apparently disappear, but it is merely covered up and the rapid spread may not come until the next spring when the infected honey from these cells may carry the disease all through the colony.

But for the present the great danger comes when this colony swarms. One authority tells us that only old bees, hardened to toil and able to "take it" go out on this adventure of founding another colony. If this were true the bees of a returning swarm would all enter their own hive and all would be well. Another equally good authority tells us that only young bees, husky and strong and able to "take it" go with a swarm; and if this were true, a returning swarm would hardly know which hive to enter. The truth seems to be that bees of all ages go; many of them have never before left the hive; and if this colony has cells in which larvae have died and the cells filled with fresh honey, when the bees load up with honey for their journey, it seems that they may carry a pretty heavy potential amount of disease. If this swarm should locate in a new home, most, or possibly all, of this infected honey might be used in building new combs.

This swarm, however, has a clipped queen and is supposed to return to its own hive, but if you have an apiary in which the hives are rather close together, you may be surprised where a large per cent of these returning bees land. No doubt practically all old bees enter their own hive, but you will see hundreds of bees light on hives for fifteen or twenty feet around and enter those colonies, and I think these returning swarms spread foulbrood through an apiary faster than any other thing—faster than robbing, for robbing is often by only one colony, even when the whole apiary seems in a turmoil. Dust the robbers with a white powder and you may be surprised how often one colony is causing all the trouble.

♦

OVER-SIMPLIFYING

Nowadays we are likely to oversimplify any subject we study. It is so easy to divide it into neat divisions and to put little labels on each. For example, it is quite often assumed that the "backlot beekeeper," or the "side liner," the enthusiastic amateur, and the student who is paying his way through college, are extinct and that honey is only produced in large outfits. That picture is only partially true. Most of us know successful backlotters and side liners, who are as much a part of the beekeeping picture as the man with a thousand colonies. Indeed, in the articles that sometimes deplore the passing of the little man, one may find paragraphs in which "education" in marketing or what not for the small beekeeper is urged so that he will not break down the market for the commercial producer. Again it is too often assumed that; in "these days of specialization," everyone is living in a city and working at mass production except a few farmers who are mass-producing food. That may be a trend but is is not a condition as everyone who will drive around any state will find out. There are still plenty of people living in towns and villages and on farms, growing gardens and fruit trees, keeping chickens and a cow or two, with perhaps some bees on the side. At any rate there is still enough of this sort of comfortable and secure living to upset plans based dogmatically on the professional economist's generalizations.

Hy. W. Sanders.

THE EDITOR'S ANSWERS

VENTILATION

Last summer I blocked my hives up from the bottom boards about an inch with a board on each side. The bees fastened down the frames with drone comb. What did I do wrong? IOWA.

Answer.—It is likely that you blocked your colonies up too far. Often bees can be kept from building comb along the bottom bars of the brood chamber by putting a slat board midway between the floor of the bottom board and the comb in order to break up the space and allow less room for them to build. You might try merely raising the hives in front with wedges at each side of the entrance.

♦

PAINT

What is the best color of paint to use for the cover of a hive? Is aluminum paint good? IOWA.

Answer.—Use a light color in painting your beehives, either the cover or the body of the hive. Light colors do not absorb the heat, but reflect it. Aluminum paint is very good. Many beekeepers use it.

♦

WINDBREAK

I wish to plant a windbreak on the south and west side of my young orchard. What varieties of trees would be best for this purpose? WISCONSIN.

Answer.—Of late it is coming to be very generally recognized that windbreaks to protect against the hot southern winds are very important to the fruit grower as well as to the beekeeper. Evergreen trees are best for windbreaks, although they are rather slow growing. Once they have become large enough, they make such a dense wall as to stop the wind very effectively. Such trees as locust, maple, box elder, etc., are too open in their habit of growth to be very effective windbreaks. The best deciduous hedge I know of, although it does not grow very tall, is the Tatarian honeysuckle. It is a native of Russia and grows to a height of about ten feet. If planted about four or five feet apart, it will eventually make a very dense and close hedge, and an effective windbreak. It also has the advantage of being quite ornamental with an abundance of bloom which yields nectar very freely, and thus provides abundant bee pasture.

All of the locusts are good honey plants. The black locust is the one that has the white, pea-shaped blossoms, whereas the honey locust has blossoms which are very inconspicuous, but which are, nevertheless, very attractive to the bees If you have room enough, you can make a very good hedge of about three rows with the Tatarian honeysuckle in front, back of that a row of Russian olives, and either black or thornless honey locust at the rear. The rows should be about ten feet apart, but by this means you will have quiet an effective windbreak and all three plants are good sources of bee pasture which is quite an advantage to a beekeeper.

The Chinese elm is a quick growing and drought resistant tree, but I am inclined to think that there are other better trees which can bee grown in your territory. In the Northwest much use is being made of Caragana or Siberian pea tree for windbreaks. It is very hardy and drought resistant, grows to a height of twenty feet and yields a great deal of honey.

♦

REGULATION

I wonder if the words "Put Up By" are legal since the new act covering the packaging foods. MASSACHUSETTS.

Answer.—The following is a quotation from the Pure Food regulations:

> "If a food is not manufactured by the person whose name is on the label, the name shall be qualified by a phrase which reveals the connection of such person has with such food, such as 'Manufactured for' and Packed by'; 'Distributed by_____' or other similar phrase which expresses the facts."

From this you can see that as long as you express yourself on the label distinctly as being the manufacturer, etc., so that the comeback can be on you in case of any infringement, you are all right.

♦

PROFIT IN MOVING

I have an average of sixty pounds of honey per colony in my permanent location. By moving the bees twenty miles in the early fall, I get another sixty pound average. With a one hundrd twenty pound average by moving, could large scale beekeeping be carried on profitably? PENNSYLVANIA.

Answer.—If you can keep up your one hundred twenty pound average, you should be able to operate five hundred colonies of bees at a profit. We usually figure that an average of one hundred pounds will pay returns where the moving is not too expensive. You, yourself, could do most of the work necessary for handling five hundred colonies of bees.

♦

SWARM CONTROL WITH THE LARGE HIVE

We have 200 colonies in the Modified Dadant hives and are well satisfied with them. While we do not have as many colonies attempt to swarm as we did when we used 10-frame hives, swarming still presents a problem. Formerly we used the Demaree systm of raising brood, but as we now have the deep frames for brood and standard frames for supers, we cannot do this. We have tried destroying cells, but most of the colonies just continue to build more. WISCONSIN.

Answer.—The large hive does not swarm as often as the smaller hive in general use. When it does swarm, however, it casts an immense cluster of bees, and, of course, the loss of these bees as far as that colony is concerned is correspondingly greater than it is to the small hive. You are further north than we and probably would experience more difficulty with swarm control than we do here at Hamilton. However, we use the large hive not only here but in southwestern Iowa and in north central Minnesota. In Minnesota, swarms are a problem.

We have one way of controlling swarming before the honeyflow. Keep the brood nest clear for the use of the queen. Suggestions about this are given in the Coaching Service for the Modified Dadant Hive.

If the combs at the sides, which are not being used for brood, are placed in the center when they are empty, and full combs of sealed brood from the center moved to the outside, that will make room in the brood nest. If the queen is so prolific that she has to use all the combs in the hive, remove a few of the sealed combs of brood before queen cells ever start, and replace them with empty combs to relieve the congestion in the brood nest. This extra brood may be used for increase or to strengthen weaker colonies. In taking brood this way, make sure the colonies are healthy.

We do not care to use the Demaree swarm control method with the large hive. If the suggestions made do not control swarming, is is usually because the queen in the colony is old and the bees are attempting to replace her. The supersedure cells are built at about the same time swarming is most frequent with the result that the colony with supersedure cells may swarm with a virgin queen. Supersedure coincident with swarming is common in beekeeping. It may be avoided if the beekeeper anticipates the failure of his queen sufficiently to introduce new young vigor us queens to prevent supersedure of part of the bees.

There are occasionally colonies which will persist in building swarm cells, however, in spite of all that we do. Remove the queens from these colonies. They will build queen cells. In ten days remove all the queen cells (and that means **all**) and immediately introduce a young queen. This will stop swarming for the present season.

♦

GNAWING

I have heard that when frames are wired both horizontally and vertically the bees gnaw the wax where the wires meet. Is this true? IOWA.

Answer.—The bees will gnaw any kind of foundation if it is given to them during a dearth of honey. Always give bees foundation at the time of a honeyflow or stimulate the flow with a good feeding of syrup so that they will draw the foundation out readily into combs. At such time if wires both horizontal and vertical are well imbedded, there is no difficulty from gnawing. We have had thousands of frames of foundation wired both ways built out to perfect combs.

♦

STAGGERING SUPERS

When you stagger supers, what do you do when it rains? IOWA.

Answer.—There is some difficulty from rain when supers are staggered. However, the staggering is often necessary when the weather is very hot and the colony is crowded. Some protection may be had from a wide shade board on top of the hive.

THIS AND THAT • • FROM HERE AND THERE

DROUGHT RESISTANT MELANA

I received a small sample Melana sweet clover seed from Saskatchewan in 1939 and planted it on May 10 in rows about thirty inches apart. We had one of the driest springs and summers I remember, with no rain from about the first of May until the first of August.

This sweet clover made poor growth in the dry weather, but after the rain it came on fast and started to bloom about September 15 continuing until frost.

Since I was busy with other farm work, I did not have much chance to gather seed until frost, so most of the seed fell out. However, I secured two pounds and hope the shattered seed will grow next year. The bees work the plants constantly and continue to work it after other sources fail.

However, in this part of the province, I do not think Melana clover will find much use as a farm crop. Most of our honey is gathered from alsike, white clover and alfalfa, with buckwheat in the fall. I wish I knew the color of alfalfa honey. This fall the bees worked second crop alfalfa, but the honey was a dark amber and as there is much buckwheat, this may have colored the honey.

I think your articles on honey plants are of great interest and that you are doing a magnificent work for beekeepers.

James Calvert,
Reaboro, Ontario.

♦

TWO QUEEN SYSTEM IN NEW JERSEY

Describing the two queen system, Elmer G. Carr, of Pennington, secretary-treasurer of the New Jersey Beekeepers' Association, in a release from the department says: "At the beginning of the dandelion flow or earlier, if the strength of the bees warrants, two or three combs of emerging brood with adhering bees, along with three combs of honey are placed in a hive body, which is set over the parent colony with a wire screen between.

"Provisions are made so that bee flights from the top body can be made independently of the lower one, allowing a young laying queen to be introduced above (supering between). At the end of the season, the old queen is removed, and the two-story colony then resumes the conventional one queen basis."

Beekeepers who have experimented with this system report an increase of approximately 45 pounds of honey per colony, and the only increased cost is the cost of the second queen.

Bethune Jones,
Westfield, New Jersey.

♦

BULLETINS

The Dominion of Canada Department of Agriculture Experimental Farm Service, Bee Division, has sent us some of their recent issues. Among them are two bulletins by C. B. Gooderham, Dominion Apiarist. They are "Wintering Bees in Canada," and "Preparing Bees for Winter." Also concerned with the problem of wintering is Erdman Braun's "Two Methods of Wintering Bees for the Prairie Provinces." This work is the result of experiments conducted at the Dominion Experimental Farm, Brandon, Manitoba. The "Care of Bees and Equipment," by C. A. Jamieson summarizes effective means of combating some of the natural enemies of bees. Included with these publications, we received Special Pamphlets No. 2, "Bees—Spring Management," and No. 3, "Package Bees," of the War-Time Production Series issued by the Agricultural Supplies Board of Canada. The last two pamphlets stress fundamentals and are aimed, no doubt, at stepping up honey production for the Dominion.

♦

SWEET CLOVER VS. SOYBEANS IN ILLINOIS

According to reports of the Illinois Cooperative Crop Reporting Service, the acreage of sweet clover in Illinois in 1939 is estimated at 1,150,000 acres in which only 37,000 were harvested for seed at an average of 2½ bushels to the acre, with a value of $3.10, or a total of $285,000.

The alsike clover seed acreage was only 20,000, red clover 206,000, buckwheat 1,000. The total acreage of soybeans was 2,726,000 which should make Illinois beekeepers wish that this plant enjoyed better reputation as a source of nectar.

The increase of sweet clover acreage in Illinois has been phenomenal. In 1920, there were only 70,000 acres. By 1925, there were 517,000 acres; 1931, 856,000; followed by a slight decline in 1932; a rapid rise in 1936 with 895,000 acres through 1939. It is said that sweet clover acreage quite definitely correlated with the land liming program in general farming prosperity.

V. G. Milum,
Champaign, Illinois.

♦

MODIFIED TWO-QUEEN SYSTEM

Prof. W. E. Dunham, Ohio State University, publishes a mimeographed release on the use of a two queen system for honey production worked out by the Ohio Experiment Station and upon which Prof. Dunham has carried out experimental tests for the last two years.

It embodies the use of two queens in a colony during the building-up period and then reducing the colonies to a single queen during the early part of the clover flow. It is a system practical for the commercial honey producer.

Copies may be obtained from the Extension Division of the Ohio State University, Columbus, Ohio.

♦

HANDLING SWEET CLOVER

In our district sweet clover is becoming scarce; most farmers are substituting Siberian millet. However, in a number of cases we have been able to get them back to clover with suggestions about handling the crop. The objection to clover has been usually on account of the tough, woody stems which, according to the farmer, the stock do not relish. They have to be forced into eating it. The difficulty vanishes if the clover is cut early enough while the stems are still tender. This means cutting it almost before it comes into bloom, and re-

duces the quantity of hay that can be secured. However, by cutting it thus early, there is enough vitality left in the roots that it comes back very fast, and a crop of seed can be taken later in the season. This seed clover is much better than where no previous cutting is taken, for the plants are not so tall and the sheaves can be handled better with a binder, or the crop may even be cut and threshed by a combine. One farmer who used this method at our suggestion took enough seed (at 2 cents a pound) to make the profit per acre about the same as if he had grown wheat, and he had the hay into the bargain. One consideration should be kept in mind with this plan, namely, that with the clover cut so green, there is some likelihood that it will mould and spoil in the bundles. Shocks should not be made too large and other precautions may be taken. If some of the newest haying equipment is used in which the hay is dried artificially, this danger is, of course, avoided.

Hy. W. Sanders,
Morris, Manitoba.

L. A. STICKNEY—OLIVE A. STICKNEY

Beekeepers and friends throughout the state were saddened to learn of the recent death of Mr. and Mrs. L. A. Stickney, of Minnesota City. Mrs. Stickney died on Easter Sunday, March 24, just forty-eight hours after the death of Mr. Stickney. Death in both cases was caused by complications following influenza.

Joint funeral services were conducted on March 25 at the family home in Minnesota City and burial was in the Plainview Cemetery. Dr. H. D. Henry, pastor of Central Methodist Church officiated.

The Stickneys had resided at Minnesota City for forty-one years and at Plainview for twenty-two years before that. They were loved and respected by a wide circle of friends. Their energy and enthusiasm was boundless and was an inspiration to many. They were very active in the Southeastern Minnesota Beekeepers' Association of which Mr. Stickney was president for many years. The Stickney home was a favorite meeting place for southeastern Minnesota beekeepers.

Mr. Stickney has been a state bee inspector and a past president of the Minnesota Beekeepers' Association. In 1936 he was voted a life member of the state association. At the age of ninety, Mr. Stickney was the oldest beekeeper in the state. The couple celebrated their sixty-fifth wedding anniversary at their home last May. As was their usual custom, beekeepers of southeastern Minnesota met at their home to help them celebrate. Mrs. Stickney was eighty-five years old. They were married May 26, 1874 at East Orange, Vermont. Mr. Stickney kept bees for sixty-four years and took an active part in the care of his apiary until the time of his recent illness. He had twenty colonies at the time of his death.

Norris J. Ellingson,
Northfield, Minnesota.

USEFUL BOOK ON WILD FLOWERS

To those who wish to become familiar with the wild flowers of the Midwest, we recommend "Fieldbook of Illinois Wild Flowers" issued by the Illinois Natural History Survey, Urbana, Illinois. It is a compact little volume, although it contains more than four hundred pages and includes more than six hundred of the wild plants native to the state. It is freely illustrated with outline drawings which make it easy to recognize most of the plants. The opening chapter is devoted to descriptive terms, classification, and a key which serves to guide the reader to the desired information. As one becomes accustomed to its arrangment the book becomes more useful. Most of the common plants of the entire eastern half of the United States are included and many which are of wider distribution. Copies may be secured from the Illinois Natural History Survey, Urbana, Illinois, at $1.50.

ARIZONA

The flora of Arizon's deserts furnishes an unusual and distinctive supply of nectar, making the state ideal for beekeeping. Many advantages make honey production. In the central and southern parts are mild winter temperatures, days being rare when the bees cannot leave the hive for a cleasing flight.

In the spring the stream beds offer early bloom from a variety of plants and trees, serving as sources of pollen. Later, desert bloom, cactus, mesquite, catsclaw, and other flowers offer a honey source of distinctive flavor, highly prized, ranking with white clover.

When desert blooms wither, the commercial beekeeper moves into the cultivated areas, where alfalfa is the principal source. Citrus, cantaloupe and even cotton blossoms are important.

Records in the state office show there are more than 20,000 colonies of bees in Arizona, operated by commercial beekeepers. These producers annually lease from the Indian Service the rights to place their bees in certain favored spots on the reservations in the spring, which includes protection against arrivals moving in within a given number of miles, so there is freedom from competition.

The honey production varies each year with the bloom of plants, but the average yield is between three and five million pounds for the state of extracted honey, much of which has been purchased for shipment to Europe.

David E. Dobbs,
Indus, Minnesota.

BIG PACKAGES

One sign of the times is the appearance in the advertising pages of bee journals of four and five pound packages as well as the two and three heretofore displayed. There is a remarkable difference of opinion among apiarists as to the size to buy. Most are still getting two's but some very successful producers maintain that the larger ones build up so much faster that they are profitable. Of course, if there were unlimited time before honeyflow, even a one pound, or even a half-pound, might grow into a colony. But it is always a race against time and the old bees that come with the package must be numerous enough to take care of all the brood that the queen will produce. Three weeks after they are hived the first eggs will hatch and from that point the colony will grow rapidly. The question is whether an extra pound of bees, or an extra two pounds of bees, will cover more combs and collect more food and water to stimulate the queen to greater egg production during these critical early days.

Hy. W. Sanders,
Morris, Manitoba.

DR. C. S. BISSON

Geo. Vansell, of the Pacific Coast Bee Culture Laboratory, writes of the death on March 13 of Dr. C. S. Bisson, of the University of California. Dr. Bisson will be keenly missed in research circles. He was much interested in beeswax, nectar secretion, pollen reserves, and other practical problems. He cooperated fully with the beekeepers of the state, with the college research departments, and with the bee culture field laboratory. Dr. Bisson was only forty-nine years old and his death was due to a stroke.

A PRACTICAL SOLAR WAX EXTRACTOR

RECENTLY (April 1940) we drove down into Texas to get our annual truckload of bees, and while visiting there helped design a solar wax extractor which promises to be a money saver. The two pictures show the extractor dissembled and then complete, with the man who made it, F. E. Jackson, of Cameron, Texas. He runs some three hundred colonies of bees in addition to a service station, and while Jackson likes his work in supplying customers with oil and gas and free air and fixing flats and the rest of it, you can see that his bees are his real avocation. He has ambitions some day of making the bees his sole business.

The district is not a very good one for honey production. Crops of 60 lbs. to the colony are considered good and if it were not for the sale of package bees and queens, beekeeping would not be a very attractive proposition in that locality. One serious problem is that of cotton poisoning, the poison being applied to catch the boll weevil and other cotton pests, and only too often catching the bees as well. The wax moth is always present, and by the time the beekeeper discovers his loss, the combs are often so badly damaged as to be fit only for the melting pot.

When I visited "F. E." he had quite a stack of frames with more or less comb in them, waiting to be melted, and we wondered if we could not use that hot Texas sunshine. Of course the usual solar wax extractor would not do, as the slumgum would get all mixed into the wax cakes and make it necessary to re-melt them. After a good deal of planning, we built the extractor seen in the photographs, and it worked all right, giving clean wax with but little waste. As will be seen, the outside is a wooden

Solar extractor closed.

Solar extractor opened.

box about four feet square. The dimensions do not matter. In the case shown we simply made it to fit an old window sash that happened to be on hand. At one end of the box is a hinged door, opening upwards, so that a dishpan to receive the melted wax can be inserted.

Underneath the glass is a light frame covered with screen wire. This sits on blocks and is removable. Under this again is a sheet of metal, bent in the center so that the wax collects on it and runs out into the dishpan. The sides and ends are turned up an inch and soldered, to prevent any waste if the center gutter should get dammed up.

To use the extractor we spread on the screen wire coarse cotton cloth—the inside of a sugar bag to be exact, and on this we piled a lot of old comb and bits of wax gathered in scraping up an apiary. In a couple of hours the temperature had risen to a point where the wax was about as liquid as thin oil, and most of it had run through the cloth and screen and had gathered in lumps and globules on the tin. After some quantity had accumulated in this way, we took out the screen and cloth so that the full heat of the sun fell directly on the metal and soon it had all melted and run into the dishpan. It was thought that later in the season, when the sun might be hotter, that the metal would heat enough to send the wax down into the pan, even if the screen and cloth were left in place. However if this should not happen, it is only a moment's work to get the screen and cloth out. Of course a little wax is held in the slumgum and cloth, but it was not considered worth while to save it, and it was planned to use a clean cloth as often as one got too dirty to filter the wax.

Mr. Jackson also planned to use this outfit for cappings. He plans to make another one, so that one might be used while the other one is being filled. He would use the screen, but no cloth, and the heat of the sun would fuse the wax in the cappings so that it would run, with the honey, into a suitable vessel from which the wax could later be taken in a cake. The honey would not be overheated and as the melted wax-and-honey would go down out of the sun almost immediately it would quickly cool. However the wax would have enough slumgum in it so that the cakes might have to be run through the melter again, through a cloth as above described.

For a beekeeper with a few colonies, or for the odds and ends of wax in a large outfit, this seems to be a fairly practical piece of apparatus. The total cost, not including the window sash, was about $2.00.

Hy W. Sanders,
Manitoba.

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BEE CULTURE IN THE CCC

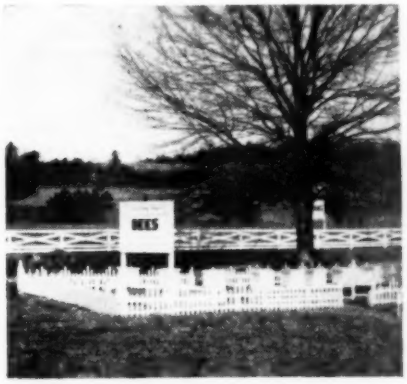
The bee culture classes in the forty-three camps of District "D" located in Alabama, Mississippi, and Tennessee have proved to be among the most interesting classes conducted according to standard outlined plans published by the District Educational Adviser's office at District Headquarters, Fort McClellan, Alabama.

Each camp has a college-trained Adviser appointed by the U. S. Office of Education, who receives specialized training each summer. During the summers of 1938 and 1939, the District D educational advisers, under the supervision of Mr. W. A. Ruffin, Extension Entomologist of Alabama, and Professor F. E. Guyton, Professor of Bee Culture, Alabama Polytechnic Institute, Auburn, Alabama, prepared outlined teaching units with the idea of teaching the boys in the CCC camps to manage small apiaries

Bee project at a camp in Alabama . . . . .

when they returned home after their term of enrollment in the CCC. Because of the splendid response, bee culture now receives special emphasis in the camps.

Each camp has approximately 200 boys between the ages of 18 to 23, 90% of whom are engaged in leisure time study in agricultural and other vocational subjects. All of these agricultural subjects are taught according to the project method, and at least one out of each two class hours are spent actually doing laboratory work at the project. The project in each camp is, in fact, a small apiary of at least ten colonies, with the most up-to-date equipment and instructional material it is possible to get.



. . . . . and at a camp in Mississippi.

Inasmuch as approximately 80% of these boys in the camps are from southern farms, and the vast majority of them will return to make their livelihood on the farm, the educational program of this district places the greatest emphasis on the scientific agricultural education of the boys.

Bee culture classes have proved to be of great interest and are very well attended. Each class has a fully qualified and competent instructor who is given the most specialized training possible in order to keep them abreast of most recent developments in their field of teaching. For the past several years courses have been conducted at Alabama Polytechnic Institute, Auburn, Alabama, and the University of Alabama, Tuscaloosa, Alabama.

Most enrollees attending bee culture classes have had a little training with bees, received for the most part from handling two or three hives on their home farm. The class of course, is primarily an educational project, designed to give enrollees useful and helpful knowledge but, in order to derive the maximum value from the class, it must be conducted in a very businesslike manner and should show a profit. Classes in this district operate at a profit and thus teach the enrollees that "there is money in the honey comb." All honey produced in camps is consumed in that camp and none of it is placed on outside markets. The CCC camps never enter into competition with outside interests.

Each class is handled by the boys themselves and all work must be performed by each individual. There is a special classroom set aside for the bee culture class. This classroom has a complete library of books and pamphlets and magazines on bee culture and is on the mailing list for all governmental publications.

The unusual enthusiasm exhibited by the CCC enrollees has placed bee culture high up on the list of courses required by the district.

♦

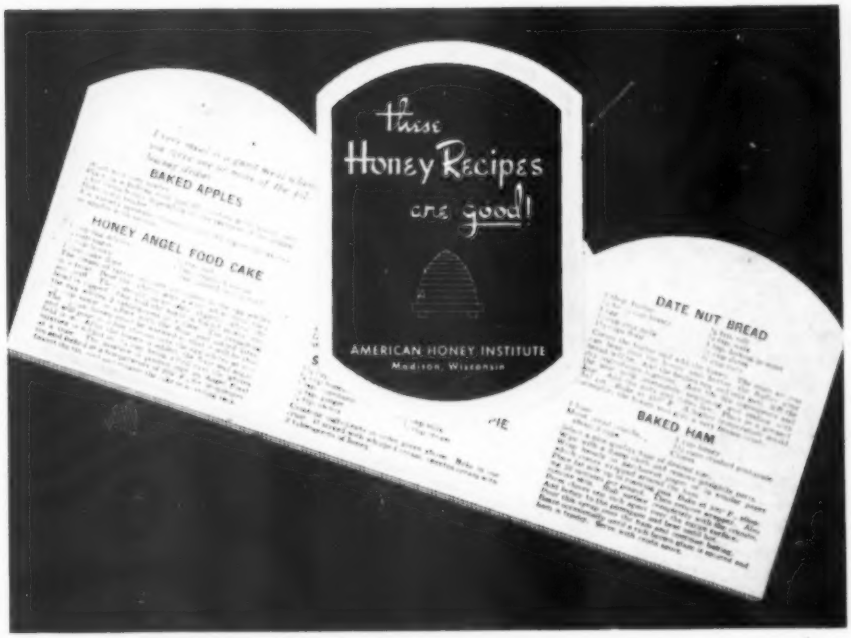
ROOT FEATURED

We have before us copy of the April 19 issue of the Medina (Ohio) County Gazette giving a very fine photograph of Editor E. R. Root at his dictaphone, and a partial biography of his life. "E. R.," as he is familiarly known in the beekeeping world, has been editor of the A.B.C. book for the past fifty-five years and the Gazette states he is now preparing for the 1945 edition.

More power to you, E. R., that you may live to serve American beekeeping both through your editorial work and your direct contact with the beekeeping public.

— ♦ —

NEW RECIPE FOLDER



Here is a new folder recently published by American Honey Institute. It is designed to fit in the cover of a 5-pound honey pail. This sort of thing should be very popular with the beekeepers and the fact that 15,000 of them were ordered in one week from the Institute office indicates that they are already beginning to catch on. They contain ten recipes, and, as the folder says, "These recipes are good." If you are packing your honey in 5-pound tins, write to American Honey Institute for a sample folder and a quotation on the quantity you require. The address, of course, is Madison, Wisconsin.

MEETINGS AND EVENTS

New Association Forming

On April 5, thirty-three beekeepers and interested friends met at Northfield, Minnesota, for the preliminary steps in formation of a permanent local association. Earl Patten, of Medford, was elected temporary chairman and Ralph Anderson of Northfield, was elected temporary secretary-treasurer. These two men, together with a third to be appointed, will draw up a constitution and suggest a suitable name to be submitted at the next meeting. The charter meeting will be held early this summer and all those who attend and register as members of the new association will sign the constitution and become the charter members.

Those who missed the first meeting and would like notice of the next meeting may send a card to Ralph Anderson, Northfield.

The Northfield meeting was ably conducted by Charles S. Hofmann, president of the Minnesota Beekeepers Association. Dr. M. C. Tanquary, of University Farm, discussed some of the beekeeping problems of today and described experiments carried on at University Farm over a period of years which show the importance of selected stock. For example, one group of colonies averaged only 50 pounds of honey per colony for a two year period, but for the next two years, after systematic requeening with stock selected for production, these same colonies made an average of 399 pounds per colony for the two year period.

A. G. Ruggles, state entomologist and chief apiary inspector, explained the new bee registration law and its advantages to the beekeeping industry of the state. Dr. M. H. Haydak, instructor in beekeeping, gave some interesting facts about the use of honey as food. Many visitors were interested in his experiences with a milk and honey diet. C. Edwin Swenson, secretary of the Minnesota Valley Association, and P. P. Stiever, secretary of the Southeastern Minnesota Association, discussed beekeeping possibilities and gave some useful hints in carrying on the work of the new organization.

♦

Westmoreland County

Westmoreland County, Pennsylvania, had no beekeepers' association prior to March 8, 1939, and had not had any bee inspection since 1932. Beekeeping was more a hobby than anything else, and American foulbrood was much too prevalent. Cross combs were a natural result of using soap boxes as hive bodies, and, generally, beekeeping was more of a liability than an asset.

We have a wide awake county agent in W. L. Treager, who was determined to do something about the state of beekeeping in Westmoreland County. As a result of his efforts, on March 8, 1939, the Westmoreland County Beekeepers' Association came into being with eighteen charter members. On July 21, under Mr. Treager's watchful eye, the first county picnic was held in a wood on the farm of one of the members. Wild bees in an oak tree were transferred to a modern hive. Some sixty beekeepers were present.

This year we have sponsored an apiary inspection program for the county, and now since the Pennsylvania Department of Agriculture has Inspector John Renner, he is going over the entire county with a fine tooth comb, township by township, burning foulbrood, straightening cross combs, showing the beekeepers how to cooperate with each other, and to make money from their bees. He is getting a fine reception and good cooperation. Mr. Treager has paved the way with newspaper articles and radio broadcasts.

We have sponsored a county survey of beekeepers which is now approaching the four hundred mark.

Our membership now stands at thirty-four. We have sponsored a 4-H Bee Club with seven members last year, and five new members so far this year. In 4-H Club work, each member used a two pound package of bees and a complete outfit of new equipment. Pennsylvania had one of the toughest bee years in her history, but the boys and girls are coming back for more. We have invited the State Beekeepers' Association to hold their annual picnic in Westmoreland County, and they have accepted. It will occur Saturday, August 17, at Idlewild Park near Ligonier, Pennsylvania. The officers of our association are as follows: David R. Lauffer, Export, president; J. J. Husband, Ruffsdale, vice president; and F. W. Connelly, Greensburg, secretary.

F. W. Connelly,
Secretary.

♦

Wisconsin Association

The Wisconsin Beekeepers Association will hold three summer meetings this year as follows: July 23, Platteville, City Camp (in honor of the 83rd birthday of N. E. France); July 24, Menomonee Falls—Honey Acres (Walter Diehnelt Apiaries); July 26, Ladysmith, Memorial Park.

The forenoon at each meeting will be devoted to inspection of a nearby apiary and honey extracting plant. Questions will be answered and equipment discussed. There will be a pot luck luncheon during the noon hour, every family bringing a dish for the luncheon. The afternoon program will feature prominent speakers including Mrs. Harriett Grace, American Honey Institute: E. R. Root, Medina, Ohio; Dr. C. L. Farrar, Madison; E. L. Chambers, J. F. Long and others. A Woman's Auxiliary program will be held in connection with each meeting.

H. J. Rahmlow,
Secretary.

♦

Virginia Association

The Virginia State Beekeepers' Association will have a basket picnic and meeting on July 17, at Miller Park, Lynchburg. All beekeepers are invited.

Henry W. Weatherford,
Secretary-Treasurer.

♦

Delta Beekeepers' Association

The Delta Beekeepers' Association meets the first Monday of each month at Vicksburg Y. M. C. A. at 8:00 P. M. Field meetings are held each month on the Sunday nearest the 15th to visit various apiaries in that section.

♦

Illinois Field Meet

The Piatt and Macon County Association is sponsoring the semi-annual meeting of the Illinois State Beekeepers Association at Fairview Park, Decatur, July 21. The program will include a round table discussion in charge of state officials, talks by O. G. Rawson, A. G. Gill, G. W. DeBord, Carl Killion and others. There will be contests, drawing and entertainment.

Willard W. Smith.

♦

Middlesex County Association

The July meeting of the Middlesex County (Mass.) Beekeepers Association will be held at the residence of A. F. MacDougall, Boston Road, Westford, Massachusetts, at 2 P. M. on Saturday, July 27. This will be a joint meeting with the Nashoba Fruit Growers Association. Professor Arthur G. Hildreth, who is both a beekeeper and a fruit grower, will speak on "The General Usefulness of Bees." Hives will be opened. Mrs. MacDougall will be in charge of the Ladies Auxiliary supper featuring

cold meats, fresh vegetable salad, honey bread, pickles, honey apple pie and ice cream. Please bring your plate, cup and silver.

A. M. Southwick,
President.

♦

Southeastern Kansas

The Southeastern Kansas Beekeepers Association will hold its annual picnic at E. L. Yount's bee farm, three miles north of Chanute, on Highway 69, July 21. There will be a business meeting at 11 o'clock and a basket dinner at 12. There will be two speakers in the afternoon.

William Krueger,
President.

♦

Wabash Valley Round-Up

The fifth Wabash Valley Round-Up of Illinois and Indiana beekeepers will be held at Newport, Indiana, Saturday, September 7. The tentative program includes the following. "The Use of Disease Resistance Stock in Commercial Production," G. H. Cale; "The Two-Queen System," Dr. C. L. Farrar; "The American Honey Institute at Work," Harriett Grace; "The Use of Honey in the Home and Children's Diets," Mrs. J. L. MacDonald; "Selling the Crop," M. J. Deyell.

There will be numerous contests and entertainment features including a question bee, drone race, queen finding contest, music by the Newport High School Band, a magician, a black face entertainer and 250 pounds of fried Wabash cat fish.

There will be things to hear and things to see. Don't forget to include the fifth Wabash Valley Round-Up in your plans for September.

L. R. Stewart.

♦

Ohio Summer Meeting

The Ohio beekeepers' summer meeting is scheduled on August 8 and 9, at the Camden High School Grounds, Kipton, Ohio. The Lorain County Beekeepers Association is cooperating with the state association in working out an attractive two day program.

♦

Georgia Bees Go To School

C. H. Herndon, Secretary-Treasurer, Georgia Beekeepers' Association sends us a honey and beekeeping bulletin which has just been gotten out by the State Department of Education.

The general plan is to provide suggestions which pupils and teachers on all levels will find helpful in doing creative work in all phases of beekeeping, of honey production and its consumption as a substantial Georgia industry.

In other words, a desire to give a better understanding of the value of beekeeping as an industry in Georgia, the various types of honey produced in Georgia, relationships of bees to horticulture, consumer demand for honey, interest in the honeybee itself, its life and activity, and the vocational possibilities of various phases of beekeeping.

The suggestions cover not only the elementary grades but the later grades and into high school.

♦

Cuyahoga County (Ohio)

Cuyahoga County (Ohio) Beekeepers will hold their annual summer round-up on Sunday, July 28, at the home and apiary of the County Bee Inspector, George Seidel, Depot Road, Stronsville, Ohio. The activities will begin with a basket picnic at 12 o'clock (rain or shine), followed at 2:00 P. M. by talks by well-known leaders in the bee industry. All beekeepers, whether members of the association or not, and beekeepers from neighboring counties, are cordially invited to spend an enjoyable afternoon with us.

J. M. Miller,
Secretary.

♦

Indiana County Meeting

The fourth annual field day of the Madison County (Indiana) beekeepers will be held at the Edgewood school house on State Road No. 32, west of Anderson, Saturday, July 27. The attractions of the day will include a honey show, baking and cooking contest, guessing contest, basket dinner at noon which will be followed by entertainment and speakers.

H. H. Sigler,
Ingalls, Indiana.

♦

Iowa Short Course

The Iowa State Beekeepers' Association held its annual short course for beekeepers at Ames, Iowa, Thursday and Friday, May 16 and 17. The meeting was very well attended, there being approximately 75 beekeepers and their wives there. There was much interest and enthusiasm in subjects which were discussed.

The principal speaker was Mr. J. W. Newton of Baton Rouge, Lousiana, who, in a series of three talks, discussed queen production and the production of package bees. Mr. Newton stated the actual cost of producing a 2-pound package of bees is $1.60. This price it without queen. The actual cost of producing a good queen is 42½ cents, making a total of $2.02½ as the actual cost of production of a 2-pound package of bees with queen. In finishing his discussion, Mr. Newton stated that the greatest problem which the producer of package bees and queens faces is a lack of an understanding and cooperation between the package bee man and the beekeeper in the North. With understanding and cooperation, bees can be produced which will be entirely suitable to the beekeeper.

The meeting also featured two open discussions; one concerned with honey house requirements, the other with marketing honey. Both discussions were entered into with enthusiasm.

Adding to the interest of the meeting was the fact that the Iowa State Beekeepers' Association is beginning to distribute queens produced from a disease resistant strain of bees to its membership.

♦

Rockland-Bergen Counties

The July meeting of the beekeepers of Rockland and Bergen counties will be held on July 21, at the home of W. F. Dusenbury, 72 Yesler Way, Hillsdale, N. J. A demonstration will be held and all problems will be discussed thoroughly. Prizes for the best cakes, cookies, or candy made with honey will be given. And don't forget the refreshments which the ladies so generously supply.

Frank Schwab, Sec.,
Cliffside, N. J.

♦

Winnebago County (Wis.)

Kenneth Smith was elected president of the Winnebago County Beekeepers' Association at its May meeting at the home of Mr. and Mrs. H. E. Greenwood in Oshkosh, Wisconsin. Fred Schmidt was named vice-president and Alton Buttles, secretary-treasurer.

Mrs. Kenneth Smith and Mrs. Alton Buttles have been named the association's refreshment committee, and Arthur Butt and Arthur Plummer the entertainment committee. The monthly meetings are open to everyone interested in the keeping of bees.

H. C. Brunner,
Milwaukee, Wis.

♦

Marathon Association Picnic

The Marathon Beekeepers' Association, meeting May 22 in the First American State bank directors' room in Wausau, Wis., re-elected Joseph Garree, Easton, president, and Theodore Hackbarth, Maine, secretary-treasurer.

August 4 was set as the tentative date for the association's annual picnic to be held at the Joseph Martin home in the town of Emmet.

H. C. Brunner,
Milwaukee, Wis.

♦

Tri-County Picnic

The annual outing and picnic of the beekeepers of Delaware, Mont-

gomery, Philadelphia and surrounding counties will be held July 27, at 1 P. M., at the Morris Arboretum, one of Philadelphia's most beautiful estates. The program will include speeches, games, contests, and a motion picture, "The Realm of the Honeybee." Everyone is invited. Bring a box lunch and enjoy the outing.

Harry B. Pye,
Secretary.

♦

Washington State

The Washington State beekeepers will hold their annual picnic at Lake Tipsoe, August 3. Everyone is invited. Come prepared for a day of fun and entertainment. Bring a basket dinner.

Eva Wixom,
Secretary.

♦

Lorain County, July 8

The Lorain County (Ohio) Beekeepers Association will meet Monday evening, July 8 at 8 o'clck at the home of Mr. and Mrs. Ora Van Hauss, at Amherst.

George E. Yost,
Secretary.

♦

Maryland State Meeting

About forty Marylanders met in the Y. M. C. A. Auditorium, Hagerstown, Maryland, for their thirty-first annual meeting. Harold L. Kelly, Forest Glen, a most able chairman, with the assistance of J. M. Marsh, Brentwood, handled the meeting nicely in the absence of Geo. J. Abrams (the man behind the scene), who was nursing a severe cold.

Among the beekeeping notables who took active part in the programs, were Jas. I. Hambleton, C. E. Burnside, and Harold J. Clay, all of the U. S. D. A. Dr. E. N. Cory, of the University of Maryland, awarded prizes for honey exhibits totaling $320 and announced formal appointments of regional inspectors who will operate this year on a $2,000 budget. Election of officers was deferred until a later meeting.

Maryland beekeepers are fortunate in surrounding possibly the best market for honey in the world. They are offered more prize money for their exhibits than beekeepers of most other states and beekeeping seems profitable in most all counties of the state. Under the leadership of George Abrams they are beginning to take advantage of this newly discovered fortune.

A. D. Hiett.

INSTITUTE BENEFITS

An interesting example of cooperative effort was evident at the short course held at Ames, Iowa, May 16 and 17. The following package bee shippers exhibited: Newton and Lott, 1 frame nucleus with queen and 3 pound package with queen; Garon Bee Company, 3 pound package with queen; Bolling Bee Company, 6 queens. These companies indicated that any disposal at the end of the sessions would be satisfactory to them. When the matter was put up to those attending the short course, it was immediately and unanimously decided to auction off this material and send the proceeds to the American Honey Institute. The result of this auction was as follows:

The nucleus was sold to Nielson, of Rolfe, Iowa for $3.25; the three pound package with queen was sold to Harold Dodge, of Ames, $4.00; the package from Garon, Niels A. Nielson, of Rolfe, Iowa, $4.00; the six queens were sold to Frank C. Pellett, of Atlantic, $1.00; John A. Johnson, Pomeroy, $1.00; Herald Partello, Boone, $0.65; Newman I. Lyle, Sheldon, $1.00; Clifford Gralapp, Sioux City, $1.00; Geo. P. Schatz, West Union, $1.00; J. Lloyd Wenger, Dallas Center, $1.00; Newman I. Lyle, Sheldon, $1.00.

The six queens then brought a total of $7.65, Mr. Pellett and Mr. Lyle returning one queen purchased back for resale. This makes a total of $18.90 for the sale of this material.

F. B. Paddock,
Iowa Extension Apiarist.

[Editor's Note: As everyone knows, a great deal of exhibiting is done at bee meetings by manufacturers, package breeders and the like. Often the material is of a perishable nature that can be disposed of in only one way. If the example outlined above, could be followed more often, American Honey Institute would have a small, but welcome, additional source of revenue.]

♦

CAUTION! CYANOGAS

Considering the way in which many beekeepers handle cyanogas, it is a wonder more severe accidents do not occur. Careless handling of the deadly poison has resulted in many light reactions. Some beekeepers have suffered severe headaches for a day or so, some have broken out in a cold sweat, some have had the membranes of the mouth swell. It seems queer that the timely warning on the directions on the container, and the publicity which has been given to the danger involved in handling cyanogas, has not resulted in more caution being taken by beekeepers.

Alfred P. Johnson,
Rankin, Illinois.

INSTITUTE

Armies still travel on their stomachs and the Institute has sent recipes and information on honey to the various schools for bakers and cooks in the army as well as to the Subsistence Research Laboratory. Honey is being stocked quite universally in Army Commissaries and may be used by troops in their organization dining halls. We hope that it will soon be made a component of the daily ration.

♦

The Institute is working with a number of candy manufacturers and bakers. One of the largest candy corporations in America writes, "Oft times honey is offered us by beekeepers in small quantities and as we manufacture one candy bar throughout the entire year we cannot change our formula in order to use up small quantities of honey of different flavors. This has been one of our greatest drawbacks."

♦

A physician who served overseas during the World War told us that he always put a candy bar in his inside coat pocket to eat when his energy was getting low. The manufacturer is now planning to use domestic honey in this bar.

♦

This is the canning-with-honey season. Will you help us distribute the leaflet, "Use Honey for Canning and Preserving." We shall help you by giving you the leaflets (while they last) at $2.50 per one thousand.

♦

This is also the salad-and-refreshing drink season. A dietitian in a hospital remarked that one cannot make a good fruit salad without honey.

♦

The Institute is scheduled for three broadcasts during July and August. One broadcast will be on "Honey in Canning and Preserving."

♦

You will want to distribute a number of the Honey Cooky leaflets and of course the new leaflet that fits the cover of a five pound pail. Eighteen thousand of the latter were ordered in one week. This leaflet should bring repeat business for honey.

♦

Circular 554, just published by the United States Department of Agriculture, contains a summary of reports from beekeepers which lists the various honey plants in each section of the country. The circular includes

NEWS

a seasonal chart for each state indicating the time during which some of the important honey plants are supplying the bees.

♦

Will those who pack honey in glass pails or bottles, who are interested in a leaflet of recipes to fit the cover, please write to us. We have designed one similar to the one that fits in the cover of a five pound tin pail but it is smaller in size and has more pages. This leaflet can be fastened securely to the top of the cover with a strip of cellulose tape or with seals which the Institute will furnish.

♦

We have a new leaflet for your baker. It is entitled "Holiday Honey Cakes" by W. E. Broeg. Many bakers make up their holiday dough during the month of August in order to give the mixture a chance to ripen during the months that follow.

Honey in baked goods should make "dough" for the baker.

♦

With most nationally known food products we always find a recipe leaflet. The leaflet found in Pillsbury's Best flour contains a recipe for "Peach Honey Cobbler."

♦

A class in foods in one of our universities did some experimental work on honey for the Institute. Some commercial honey was purchased. The acidity was found to be 2.4. The amount of soda needed to neutralize this acidity was found to be one fifth teaspoon per cup of honey. This quantity was used as equivalent in leavening power to one teaspoon of baking powder. Tartrate baking powder was used and a sufficient quantity was added to provide leavening, on the basis of one and one half teaspoons of baking powder per cup of flour. Often the strong taste of soda is disguised by the large amount of spice used. Where chocolate is included as one of the ingredients of a recipe add one-twelfth teaspoon of soda for each square of chocolate used.

♦

Honey is being featured over WTAM Cleveland, Ohio, on the Woman's Club of the Air program. Listeners are to receive one of the Institute's leaflets.

♦

Honey Hint. Why not send brides in your community a jar of your good honey? It may be dressed up in cellophane and tied with an attractive bow. Be sure to include a recipe leaflet.

"NO SUBSTITUTE FOR MEMBERSHIP"

By THOMAS C. BURLESON,

President American Honey Producers League

THE need for organization among beekeepers is greater than ever at the present time, as there is such a multiplicity of problems that can only be solved by group action.

Marketing and advertising is always one of the beekeeper's problems and here again and again can we point to the splendid work done by Mrs. Harriet Grace, Institute Director of the American Honey Institute. The activities of the Institute have done wonders in honey publicity and keeping our product continually before the great American public. Honey has never had the commercial promotion which its excellence deserves until the start made by our A. H. I. To stop or slow down would be tragic. Every wide awake honey producer in America should give and give freely to keep this excellent and worthy work in operation.

The question of bee feeding, breeding and stock improvement was taken up at the recent League Convention, and it was requested that Dr. Lee A. Strong, Chief of the Bureau of Entomology and Plant Quarantine include the necessary funds in the department budget for the purpose of more fundamental research pertaining to these problems.

The problem of protecting bees against poisons used to exterminate grasshoppers was also taken up, and Federal and county agencies were urged to find a substitute poison or to improve the method of application in their war against insect pests. It was brought out that thousands of colonies of bees have been destroyed in the control of grasshoppers and that cattle, poultry and wild life also are endangered.

Information about honey content of blossoms was discussed by George H. Vansell of the U. S. D. A., Bee Culture Field Station, Davis, California. For instance the sugar concentration in different varieties of plum blossoms may vary from 10 per cent to 28 per cent. A long list of leading honey plants heads the list with 65 per cent sugar concentration and at the bottom of the list are avocados with an average of 15 per cent.

Western beekeepers are fortunate indeed in having our U. S. D. A. Apicultural Field Station at Davis, California with a staff who are so ably carrying on the work of studies of bee nutrition and associated problems which in particular benefit west coast beekeeping and agriculture in general.

Mr. D. B. Bradshaw, large producer and distributor of Wendell, Idaho, ably presented the facts that in recent years there has been a tendency to place more and more regulations upon inter-state commerce, many states using various methods to keep the products of other states from entering. Unwise quarantine regulations, ununiform standardization requirements and similar unwise laws and regulations have been proved to place an unnecessary burden upon the backs of the producer. Unnecessary trade barriers are restricting trade in honey between the various states without resulting in material benefit. It cannot be overlooked that the prosperity and growth of the United States have largely taken place because of the free flow of commerce between those states as guaranteed by the Constitution.

Space will not permit a review of the many interesting subjects presented and discussed. Never have we in California had the pleasure of meeting and hearing so many of the outstanding personalities connected with the bee and honey industry of our Nation. The annual banquet was attended by more than 300, a complete sell-out. The food, music, entertainment and merriment will long be remembered.

The slogan "There Is No Substitute for Membership" is as true as ever, the American Honey Producers League has accomplished much in the past, but still greater opportunities are present in our ever changing trend of agricultural development, so let's all help the good work along by mailing $1.00, our 1940 membership in the League, to our new Secretary-Treasurer, Mr. Louis M. Hines, Omaha, Nebraska. REMEMBER—Affiliate your State Association too.

EXCERPTS FROM THE GOVERNMENT BEE CULTURE REPORT

The Report of the Chief of the Bureau of Entomology and Plant Quarantine, 1939, summarizes the work in bee culture:

In the Bureau's cooperative program on American foulbrood, participated in by the Arkansas, Iowa, Texas, Wisconsin, and Wyoming Agricultural Experiment Stations, over 700 queens of resistant stock were reared by the Texas station during the spring of 1939 for distribution to cooperating beekeepers.

In 1938, when strains of bees were being tested for resistance to American foulbrood at the Bureau's Wyoming laboratory, 27 out of 40 inoculated colonies which contained queens of the F^2 and F^3 generations either recovered or failed to contract the disease, whereas out of 27 colonies headed by 14 queens from stock with an unknown history for disease resistance and 13 from F^1 queens of stock showing resistance only 12 recovered or failed to contract the disease. The data show that an increase in resistance was obtained over that in 1937. Work by the Iowa Agricultural Experiment Station the same year with 111 line-bred queens reared by the Texas Station also indicated a gain in resistance. This increase apparently was the result of selective line breeding, although some undesirable characteristics, such as nervousness and a tendency toward irregular-spotted brood nests, seem also to have been intensified.

The Iowa station in 1938 distributed to commercial beekeepers 888 Texas-reared queens of resistant stock. The Bureau's Wyoming station distributed 667 similar queens in Colorado, Minnesota, and Wyoming. Cooperators reported less disease in this stock than in stock obtained from other sources.

Three colonies out of 26 given opportunity in an isolated locality to rob honey contaminated with American foulbrood failed to contact the disease, although the others became infected, in tests on the relation of robbing to spread of the disease carried on by the Wyoming Agricultural Experiment Station. The queens from the three colonies were sent to Texas for breeding purposes.

A new sublaboratory was established on February 1 at Hope, Arkansas, in cooperation with the Arkansas Agricultural Experiment Station. The long season in southern Arkansas will be used to advantage in supplementing the work on disease resistance. In addition, the program for the laboratory includes maintaining a reservoir of resistant strains and rearing queen bees for testing elsewhere by the Bureau and its cooperating agencies.

That house-cleaning activities of the worker bees play an important part in disease resistance is demonstrated by the large amount of healthy brood reared in cells from which the bees have cleaned out diseased remains. Where reinfection occurs in such cases, infected food rather than remaining diseased material appears to be the cause. The fact that brood from resistant queens showed no less disease than that from nonresistant queens when placed in heavily diseased colonies further points to the importance of the house-cleaning behavior of bees.

The time required for the removal of diseased brood ranges from 1.2 to 10.9 days. The degree of resistance, however, is not entirely correlated with the rapidity of cleaning out the disease. Cells found diseased on one inspection are not likely to be found later if inspections are spaced several days apart. Light infections are thus apt to be overlooked if inspections are made infrequently.

The effect of 8-hydroxyquinoline sulfate at a dilution of 1 to 1,000, added to diluted honey containing spores of **Bacillus larvae** and heated, indicates that small amounts of this substance, insufficient to be toxic to adult bees, greatly diminish the amount of heating necessary to kill the spores. The possibility of the use of this chemical to make such honey safe to feed to bees is thus indicated if it can be obtained cheaply enough.

Inoculations of colonies with spores of **Bacillus larvae** heated in diluted honey for periods of 30 minutes to 5 hours did not produce American foulbrood within 2 years, although spores from the same heated batches grew in culture after 3 to 30 days, showing that while the heated spores did not cause disease in a colony neither were they killed.

A positive nitrite-nitrogen test on a medium containing carrot extract but without added nitrate has long been considered specific for **Bacillus larvae.** Two other spore-bearing bacteria have been found, however, and isolated in pure culture but not identified, which give a nitrite-nitrogen test indistinguishable from that of **B. larvae.**

The relationship of particle size to the toxicity of insecticides to honeybees has been tested for lead arsenate calcium arsenate, phenothiazine, and cryolite. The medium lethal dose for fine cryolite (midsize, 2 microns) was found to be 7.5 micrograms per bee; and for medium cryolite (midsize, 28 microns), 23.2 micrograms. The influence of particle size was of about the same order of magnitude for phenonthiazine as for cryolite; for lead arsenate it was much greater, and for calcium arsenate it was much less. Of the four insecticides, phenothiazine is by far the least toxic.

Test of 14 lines of commercial stock in package colonies showed that loss of queens, poor quality or spotted brood, and low honey production were characteristic of certain lines of stock having a common heriditary background. Only 49.3 per cent of the queens survived the producing season, and only 27.9 per cent of the original number survived as good queens. The average honey yield for the 14 sources of stock ranged from 21 to 162 pounds, while for individual colonies headed by queens that survived the producing season it ranged from 30 to 310 pounds, as compared with the 60 pounds required for winter.

A survey conducted in Wisconsin in 1937 which included the bees of 17 beekeepers possessing a total of 3,438 colonies showed that many of the keepers were losing honey through weak colonies. The average honey crop per colony for the total number in the survey was 125 pounds, while for the colonies of the individual beekeepers the average ranged from 80 to 300 pounds. The range per colony, when only the highest producing colony of each beekeeper is considered, was from 175 to 600 pounds, the average of these colonies being 378 pounds. Since the average crop of the beekeepers as a whole only equaled one-third the average of these maximum-producing colonies, a failure to harvest the major part of the potential honey crop is indicated.

Enough instances of multiple matings of queens were observed at Beltsville, Maryland, and Baton Rouge, Louisiana, to indicate that such occurrences are not so rare as has been commonly supposed.

The need of winter pollen reserves for maintaining spring brood rearing was brought out in studies at Laramie, Wyoming, which showed that pollen consumption occurred throughout the winter in colonies with both abundant and negligible pollen reserves but was considerably greater during winter and increased during March and April in colonies with abundant pollen. In colonies with negligible rserves pollen consumption was less in March and April. Abundant pollen reserves are essential if colony population and vitality are to be at a maximum at

the beginning of the active season.

Tests on methods of giving colonies additional pollen showed that mixing it in honey or sirup is of little use, since the proventriculus of the bee acts to separate the pollen before the bees can give it to the brood. The tests showed that no brood was reared beyond the larval stage when pollen was given this way exclusively although egg laying was stimulated.

In a study on pollen substitutes, pollenless colonies responded to being given soybean flour by rearing brood for 10 to 14 days, after which they no longer seemed able to mature their brood. Colonies with negligible amounts of pollen responded to the flour by rearing brood normally for at least 4 to 5 weeks. Colonies receiving soybean flour supplemented by either 25 or 50 per cent of pollen gave a brood-rearing response equal to that of colonies fed pollen exclusively.

Pollen traps maintained in four California beekeeping areas yielded from 33 to 40 pounds per colony during the year. The daily production varied with the season, forming curves similar to the brood-rearing curves for the areas. As much as one-half pound per day, representing 15,000 loads of pollen, was obtained by a colony during the height of fruit bloom. This shows the great pollenizing value of strong colonies in fruit pollination.

In cooperation with the University of California pollens gathered by bees from 34 different plant sources were analyzed. A wide variation was found in protein and mineral content, as shown by the following summary: Protein, 7 to 35 per cent; calcium, 0.3 to 1.18; magnesium, 0.06 to 0.35; phosphorus, 0.11 to 0.81; iron, 0.0006 to 0.0071; and potassium, 0.33 to 1.14 per cent.

In studies made in cooperation with the Oregon Agricultural Experiment Station nectar from yellow sweet clover was found to contain more sugar than did that from white sweet clover. In the Imperial Valley of California the quantity of sugar in the nectar of alfalfa was greater for plants grown on dry soils than for those grown on wet soils. In the San Joaquin Valley the nectar secreted by the extrafloral nectaries of cotton was richer than that secreted by the floral nectaries.

The terms of the cooperative agreement under which the Bureau's bee culture sublaboratory was established at Madison, Wisconsin, provide that the Bureau take over practically all the beekeeping work in the state. Operation of the Miller Memorial Beekeeping Library is thus included. With the cooperation of the University of Wisconsin, the collection has been classified by subjects. Cataloging will be done at a future date.

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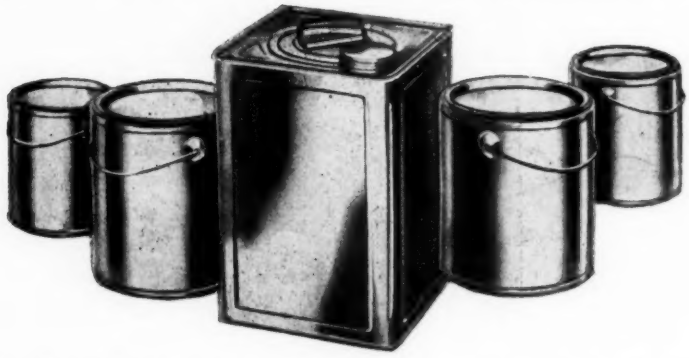

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CROP AND MARKET REPORT

Compiled by M. G. DADANT

For our July Crop and Market page, we asked reporters the following questions:

1. How nearly has honey been cleaned up?
2. Condition of bees compared to 1939?
3. Number of colonies compared to 1939?
4. Honey crop so far compared to 1939?
5. Crop prospects.

Honey Cleaning Up

Honey has cleaned up much better than the writer had anticipated two months ago. The entire eastern section, the Southeast, and the South, report a clean-up of honey and there is very little left in the Central West. The plains and intermountain areas still have considerable honey on hand and report about 90 per cent or 95 per cent sold. These conditions probably apply to California, although there are still fairly good supplies of amber grades in that state.

As a matter of fact, it is surprising that the clean-up is as good as it is without any appreciable effect upon price. Prices seem to have showed little indication of advancing in view of a shorter supply of honey, particularly in the eastern areas.

Condition of Bees

We had previously reported in these columns that bees came through the winter with very heavy losses in many sections, and this applies particularly to the Central West and some eastern sections where the winter has been particularly prolonged. Losses were naturally heavier with the smaller beekeepers but those of the larger beekeepers were not inconsiderable. This, together, with the prolonged cool spring has retarded colony build-up and and in many cases has caused spring dwindling. The latter part of the spring, however, has been satisfactory and bees have built up very rapidly. The tendency to put off buying package bees on account of the low prices of honey, undoubtedly has had some effect because many packages were bought late and naturally will be late for the crop.

Number of Colonies

The loss of bees during the winter and the apparent determination of many beekeepers not to make up losses with packages, or even by artificial division, resulted in less bees than at the same time a year ago. Some large producers have increased their number of colonies and this is particularly true in the central western areas but in general we do not believe that there will be within 80 per cent of the bees for the crop this year that there was in 1939. This, of course, applies to the small beekeepers as well as to the larger ones. Even then, we are too optimistic in our figures, for heavy losses have decimated bees in many sections.

Crop So Far

Naturally, in most sections, the crop has not yet materialized. However, in the East the crop is larger than last year ranging from 110 to 150 per cent. North Carolina probably reports the best crop of any of the eastern states, and Georgia is a likely second. Florida, although some above, has been experiencing considerable rainy weather which has interfered.

In southern Texas areas the crop is above a year ago, but not heavy. While some sections, particularly the Imperial Valley, are complaining of short crops, even in those sections it is a question as to whether the crop will be as short as last year. In the orange section, the crop is considerably better and later the flows are undoubtedly going to be ahead of 1939, which was almost a failure. Sage, while disappointing to some beekeepers, is producing well in many localities and the sage crop is far above 1939 and of extra fine quality.

Crop Prospects

If the condition of bees is 75 to 85 per cent of last year, throughout the country, prospects on the other hand are considerably above what they were in 1939. The eastern sections, as you will recall, were already facing a drought at this time last year and the prospects were diminishing. This year rains have been plentiful and such clover as came through the drought of 1939 appears to be in excellent condition. In the southeastern states, likewise, the rain has insured good prospects provided the weather is satisfactory for the flow. Central western areas also were hurt by last year's drought, but the clover seems to have come through extremely well and in most areas, even with earlier drought, late rains have improved conditions immeasurably.

Michigan, which had a bumper crop last year, will likely have difficulty in pulling through this year, and Wisconsin and northern Minnesota which suffered considerable drought as clover was growing in the fall, are complaining of shortage of clover plants. This extends also into North Dakota and on into the Black Hills country. Central western areas ge..erally, however, extending into southern Minnesota are hoping for better conditions than a year ago.

Far better conditions exist in the plains area, especially in Kansas and southern Nebraska which have had hard sailing for the past four or five years. The Arkansas Valley of Colorado is better than a year ago and other sections approximately as good, if not a little better, except that shortage of snow on the mountains and complaints of the weevil on alfalfa may have some serious effects. Southern Wyoming complains similarly of the weevil and shortage of water, whereas, northern Wyoming and into Montana are normal or, perhaps, a little above. Idaho, which experienced a fair crop last year, seems normal as do Utah and Nevada, although the colony population in the latter two seems to be under a year ago.

California has already been reported as having excellent prospects for the balance of the season, and a much larger crop than in 1939. The flow has also been favorable in Oregon and Washington and somewhat earlier than usual with unseasonable warm weather doing some damage.

The Canadian provinces are about normal with early shortage of rain being largely made up and more importations of package bees to make up winter losses than in the lower states, owing to the extremely heavy demand for honey, both locally and for overseas shipment.

All in all, it does look like it would take a disastrous season from now on to keep from having a much larger crop of honey than there was in 1939 throughout both the United States and the Canadian provinces. It must be borne in mind, however, that there was an extremely heavy carryover from 1938, whereas this year the carryover is going to be not above average, even, perhaps, minimum, most of it being of the amber grade which apparently has difficulty in being marketed, owing to demand by bakers for the milder flavored honey.

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THE MARKET PLACE

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IN THE MID-WEST it's Inland Poultry Journal, one year 25 cents, three years 50 cents. Printcraft Bldg., Indianapolis, Indiana.

MICHIGAN BEEKEEPER, the State Bee Magazine with a national circulation. 75c a year; 2 years, $1. Send 10c for single copy. MICHIGAN BEEKEEPER, R. F. D. 3, Lansing, Michigan.

HONEY PRODUCTION

As a member of a club of beekeepers' wives for almost a year, I have been pleased to observe how interested homemakers are to meet women who are using honey successfully in cookery. The women who are to demonstrate select a menu of tested recipes. On the last Thursday of each month, we meet at a different home, the hostess invites in as many women and friends as can be served conveniently, usually about thirty or forty. Last month we had a high tea. The menu: vegetable gelatin salad in which honey flavored tomato juice was used, sandwiches with spreads of honey fruit and nuts, and honey meat and relish, honey cream patties of three colors, honey angel food cake with a dash of ice cream topped with honey chocolate topping, and tea with honey and lemon.

The honey chocolate topping recipe was taken from the American Honey Institute's release and it made a remarkable hit. There is always an opportunity to secure new members for the national and state auxiliaries of the honey industry. All recipes for the dishes made with honey were distributed to the guests.

My recipe for increased use of honey is to have a honey cookery club of beekeepers' wives in every community, with well planned demonstrations of successful recipes.

Emily Holmes,
Regional Vice-President
of the Illinois Auxiliary.

♦

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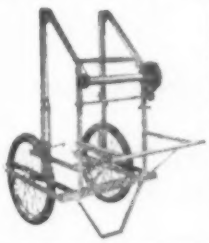

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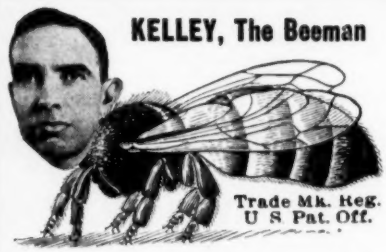

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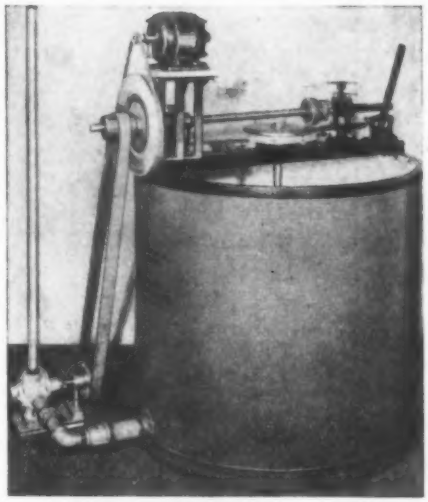

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25 years as a breederlis your assurance of really fine queens.
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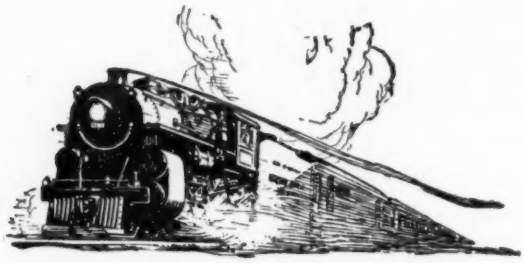

Index To Display Advertisers

Aeppler Co., C. W. 341
American Honey Institute 346
American Pigeon Journal 345
American Rabbit Journal 344
Australasian Beekeeper 346
Beekeepers Item 343
Blue Bonnet Apiaries 347
Bolling Bee Co. 349
Bordelon, E. J. 344
Brock Store 347
Burleson, Thos. C. 347
California Bee Breeders 347
Calvert Apiaries 344
Citronelle Bee Co. 345
Clutter Publications 344
Coffey Apiaries 343
Continental Can Co. 340
Crowville Apiaries 346
Cutts & Sons, J. M. 347
Dadant & Sons, 304, 345
Davis Bros. 343
Dusek Co., Joseph 348
Ephardt's Honey Farms 345
Forehand & Sons, W. J. 343
Foster, Wade H. 343
Frontier 348
Garon Bee Co. 344
Gibbs, W. O. 346
Goat World 349
Graydon Bros. 343
Gulf Coast Bee Co. 344
Gutekunst, Emil W. 347
Hazel-Atlas Glass Co. 339
Hodgson & Son, S. P. 345
Homan Bros. 343
Ideal Apiaries 349
Iowa Fiber Box Co. 343
Iverson Honey Co. 341
Jensen's Apiaries 349
Jewett & Sherman 341
Kelley Co., Walter T. 344, 347
Koehnen Apiaries 345
Latham, Allen 346
Lewis Co., G. B. 306
Lotz Co., August Inside front cover.
Lucedale Apiaries 343
McConnell, Herman 348
Marshfield Mfg. Co. Inside back cover.
Merrill Bee Co. 343
Moore, J. P. 348
Mott, E. E. 343
Muth Co., F. W. 347, 349
Neal's Apiaries 345
Plauche Bee Farm 349
Puett Co. 347
Root Co. of Chicago, A. I., Inside back cover.
Root Co. of Iowa, A. I., Inside front cover.
Root Co., A. I. 349, Back cover
Rossman & Long 346
Rusch & Son Co., A. H. 346
Senn Products Corporation 344
Shaw, A. E. 349
Spoerri Apiaries 345
St. Romain's "Honey Girl" Apiaries 349
Standard Church Co., Inside front cover.
Standard Lumber Co., Inside back cover.
Standard Rabbit & Pet Journal 345
Stevenson's Apiaries 344
Stover Apiaries 303
Superior Honey Co. 303, 345
Taylor Apiaries 345
Victor Apiaries 347
Weaver Apiaries 343
Woodman Co., A. G. 345, 347
York Bee Co. Inside back cover.

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FOR JULY 50c EACH

Seventeen years ago stock like this could not be bought in this country at any price. We appreciate your business. Bees and service guaranteed. No disease.

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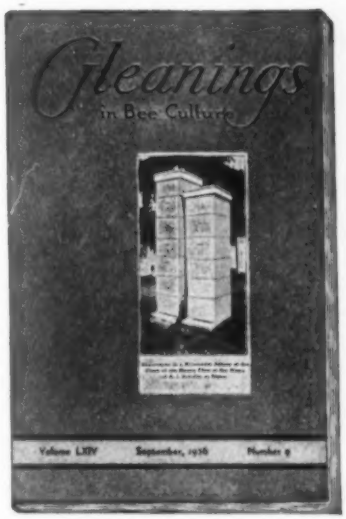

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MACON, MISSISSIPPI

COUPON
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Name and Address. One Beekeeper.

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THE POSTSCRIPT

Among the most interesting things in our test plots for the past two years has been the golden Cleome or yellow spider flower. This spring the young plants came up abundantly but suddenly a very small black beetle appeared and destroyed them almost completely. Perhaps this little beetle may be the reason that this unusually attractive plant has never become well known in American gardens. In the evening we may find young plants just coming through the ground and by morning no trace of them remains. Unless one watches closely he might never know that the seed had even germinated.

♦

Commenting on the article about Dr. Melampy and his study of royal jelly in our April issue, F. C. Mann, of Rockland, Massachusetts, makes an interesting observation. He states that a French scientist found manganese in royal jelly but no sodium. He found also that the workers' pap contains sodium but no manganese. We should like to have Dr. Melampy indicate just what significance, if any, he finds in these facts.

♦

Guy King, of Clarksville, Arkansas, inquires why crimson clover is not mentioned more often as a source of bee pasture. For the past four years he has sown it in his garden in the fall. It lives through the winter and blooms early in spring. The bees work it freely. Crimson clover is not haray in the areas where commercial honey production is important and for that reason it is not often mentioned. It is a good source of nectar but is an annual and must be reseeded each year. It is a common field crop in the southern states.

♦

Crimson clover is listed by Bonnier as third in importance among the honey plants of France. It is also reported as a source of honey in England. The yield is good and quality equal to other clovers. It is probably one of the best of the early blooming honey plants for the South. As King says, "It is hard to beat—for a cover crop, for a pretty blooming plant, and for the bees."

♦

E. M. Cole has called attention to the fact that when a colony of bees turns suddenly cross it is likely to be superseding its queen. In such a case the bees will be quiet again when the young queen begins to lay. Many a colony has been condemned as too cross to keep when the difficulty would have been cured in a normal manner, within a few days, if left undisturbed. We have all found numerous cases where bees which had been gentle became unduly cross for a time and then regained their former even temper. Cole's explanation appears to be quite the correct one.

♦

Losses at Pellett Gardens because of drought during recent years have been so heavy that we have determined to try the California plan of irrigation by pumping water from deep wells. Two seasons' trial on a small scale by pumping from farm wells has indicated that, although expensive, it can be made to pay. Now we are putting down a special well for irrigation with electric pump, pipe lines and sprinklers to water several acres. The cost of installation will probably be more than $100 per acre for the area to be watered but, barring insects, frost, and hail, should provide reasonable crop insurance. The present well is 200 feet in depth.

♦

While irrigation is essential to success with berries in this region, it is doubtful whether it would pay its cost for general farm crops under our conditions. Our test plots indicate that there may be more dependable crops available than are now in cultivation here. This region was so long regarded as a sure crop country, that little attention was given to the search for drought resistant plants. The acreage of sweet clover has greatly increased in this neighborhood since the dry years and farmers show much interest in other plants which may stand dry weather.

♦

Many years ago the late Dr. C. C. Miller said: "Somewhere there is surely a limit beyond which one cannot profitably increase the number of colonies in an apiary, but just where that limit is can perhaps never be learned." Although we formerly heard much more about overstocking than now, the problem still remains, and many a beeman would get more profitable crops with fewer bees in a given area. Less attention has been giving to the study of bee pasture than to other beekeeping problems, yet everything rests upon the available forage.

♦

Concerning bee pasture Dr. Miller said: "If I were to live my life over again and knew in advance that I should be a beekeeper, I never would locate in a place with only one source of surplus. When white clover fails here the bottom drops out. Unfortunately the years in which the bottom drops out have been unpleasantly frequent." How many present day beemen are finding themselves in the same situation is evident from letters coming to my desk. Some are concerned because too many have crowded into a good location, thus overstocking the pasture. Others suffer because of only one source which for the present has failed.

♦

There is much complaint that the big beekeeper is responsible for the present low prices of honey. One man who lives in a locality where forty pounds per colony is a normal surplus complains that his market is being supplied by honey from regions which produce more than double that amount and at prices which mean starvation for him. Modern transportation makes possible easy distribution and the stabilization of prices at the lowest levels at which a product can profitably be produced. I am at a loss for any suggestion as to how such a correspondent can improve his position. A better location may be the answer.

♦

There has been some inquiry from the manufacturers of stock foods as to whether honey might profitably be added to some of the formulas. Nobody seems to know. Extremely low prices thus arouse the interest of those who may open possible new markets. In this connection we are reminded of the use of honey as a food for fish in Japan. An account of this experiment appeared on the editorial page of this magazine in May, 1934. It was reported that flesh of honey-fed trout was moderately fat, with delicious flavor and a savory odor. We would like to see some well conducted experiments in the use of honey for fattening animals to determine its effects on the meat and its cost. Many new fields still remain to be cultivated for honey consumption.

♦

The war in Europe is causing uneasiness among all classes of people but it seems that those who live in the large cities are especially uncomfortable. Pictures of bomb wrecked cities abroad are very suggestive of what may some day happen nearer home. That the thoughts of many are turning to possible refuge in the country is evident from letters from those who are wondering whether beekeeping might offer a way out for them. Always in time of emergency men turn to the country only to go back to the city when times grow better.

FRANK C. PELLETT.